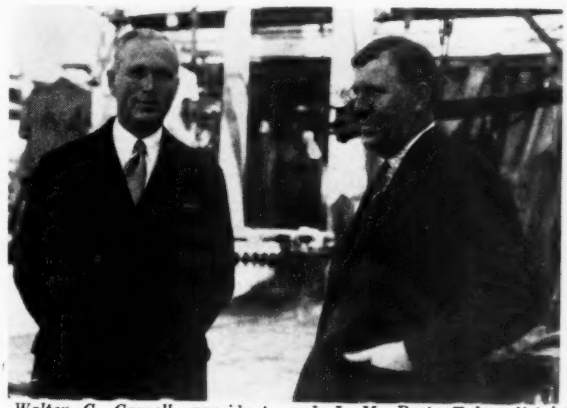
Engineering

Goes

"On Tour"

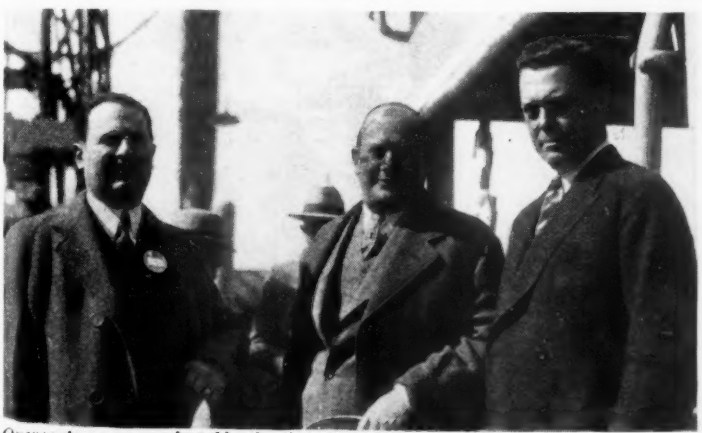
International Petroleum Exposition, Tulsa, Oct. 20 to 29, 1928, Is Impressive Demonstration of Extent to which Scientific Methods and Equipment Designed in the Light of Latest Engineering Knowledge Have Replaced "Rule of Thumb" Operations, not only in the Oil Producing Fields, but also in Refining and Distributing Branches of the Oil Industry.

1859 to 1928. *A replica of the Drake well nestling among 120-foot steel rigs in the Exposition's central concourse*



Walter C. Carroll, president, and J. M. Post, Tulsa district manager, Oil Well Supply Co. stepped outside their building to look the crowd over

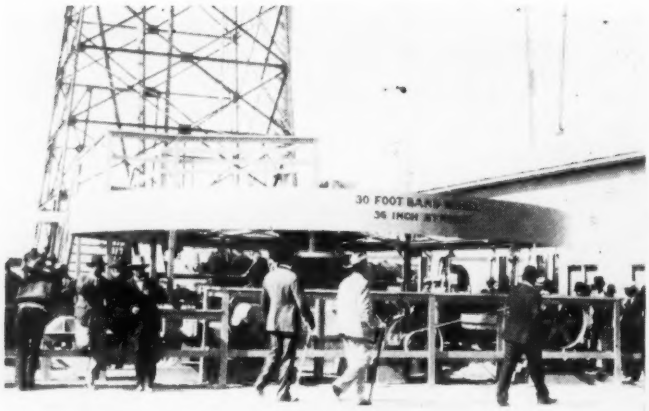
William Schwemlein, Chief Engineer, S. P. Wallace, Tulsa representative, and L. D. Crawford, sales manager of the Parkersburg Rig & Reel Co., with George L. Morehead, vice president of the Link Belt Co.



Overcoats were comfortable the first day of the Exposition when this picture was snapped of E. N. Smith, W. E. Palmer and H. G. Trimble, sales manager, all of the National Supply Co.

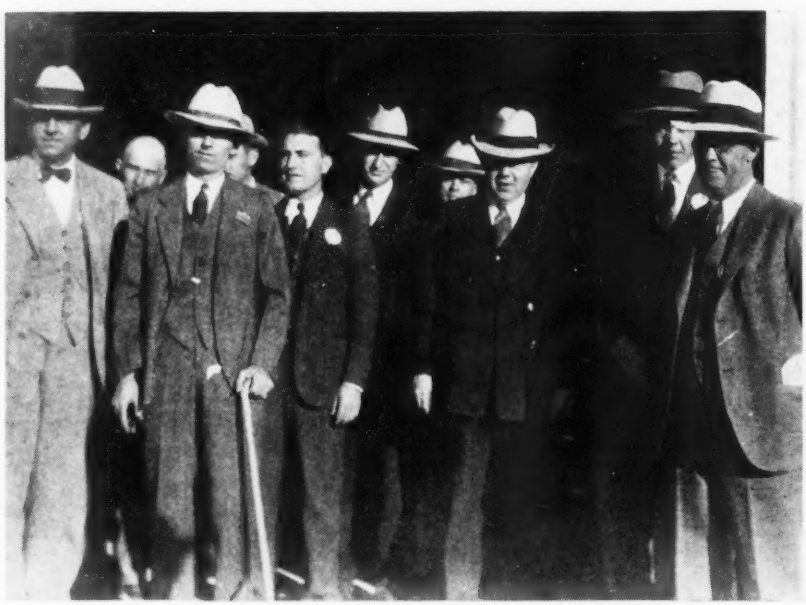
Robert McCoy, Jr., sales manager, and O. C. Staples, manager of the machinery department, Frick-Reid Supply Corp., Tulsa, "looked pleasant" but the crowds of visitors at the exposition, not the photographer, were responsible

Along Supply House Row at Tulsa Exposition



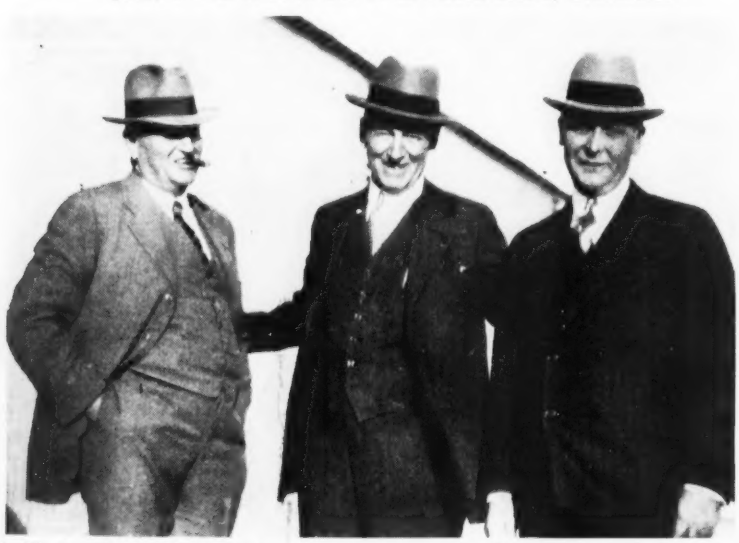
The 30 foot band wheel in the picture at the left was part of the National Supply Co. exhibit. Even in present day oil well pumping a 24-foot band wheel is about as big as the industry has been using

The store replicas reminded many visitors of the stores in the boom towns of the oil fields where the supply companies always arrive early



The second man from the right in the foreground is W. K. Hughes, president of the Continental Supply Co. This genial group was part of the staff kept busy greeting visitors at the Continental's building. Others in the foreground in the picture, from left to right, are O. A. Kocher, Youngstown Sheet & Tube Co.; Frank John, Continental Supply Co.; J. A. Mussler, of the Youngstown company; J. C. Siegle, same company; and A. J. Olson and T. M. Combs, both of Continental

***Geo. B. Small**, inventor of the Smallomatic, new type flowing device for little wells*



A. W. Leonard of the Devonian Oil Co. (left) and John H. Markham Jr., individual producer (right) hear William H. McFadden of the Marland Companies tell about his recent trip in northern Saskatchewan

C. H. Sheasley, president of the Franklin Valveless Engine Co.

Oil Men and Exhibitors Visit at Exposition

Left—Chester Narramore of the Sinclair Consolidated Oil Corp., tried to step out of the path of the camera but he wasn't quite quick enough Right—C. P. Clark, Clark Bros. Co., Olean, N. Y., didn't need much encouragement from visiting oil men to break into a sales talk on his compressor equipment.

—Photo by J. L. Rankin

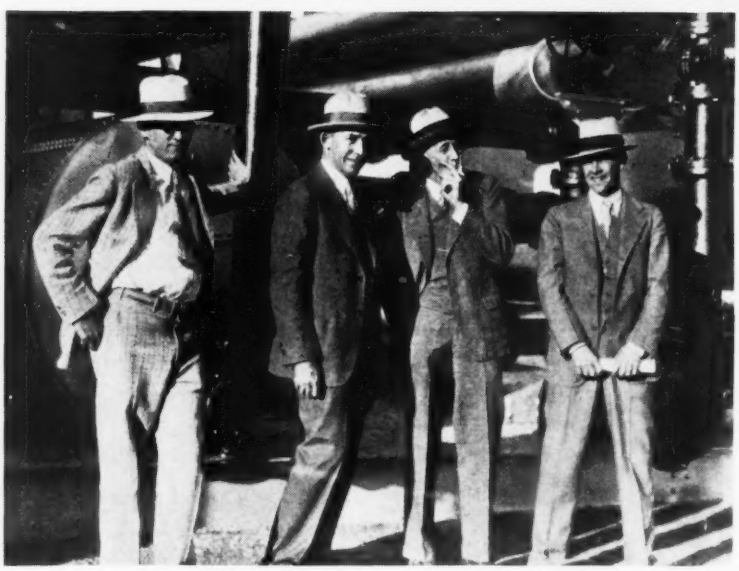
W. G. Skelly, president of the International Petroleum Exposition and head of the Skelly Oil Co., Tulsa

Above left—D. R. Brown, vice president of the O. C. S. Mfg. Co., manufacturers of oil country specialties

Above right—C. S. Campbell, assistant to the president of the W. K. M. Co., with G. R. Livergood, inventor of the W. K. M. Rotary Slip

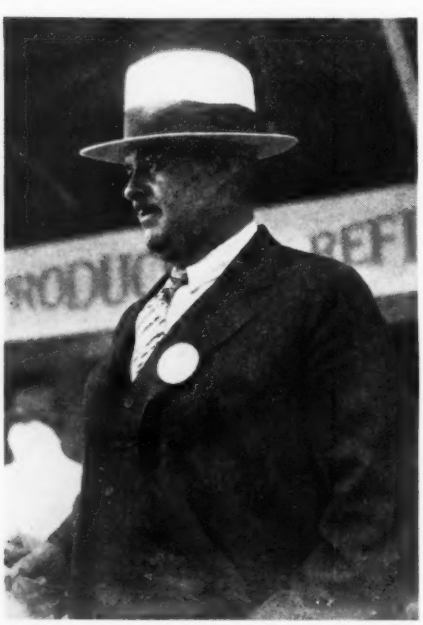
Right—The photographer waited a long time to get all four of the Taylor Instrument Co. men at leisure. Left to right, E. C. Taylor, G. S. Taylor, L. G. Marsh and E. H. Triphaus

Walking canes for the foot-weary exposition visitors as well as the display of fishing tools brought crowds to the Hinderliter Tool Co. booth



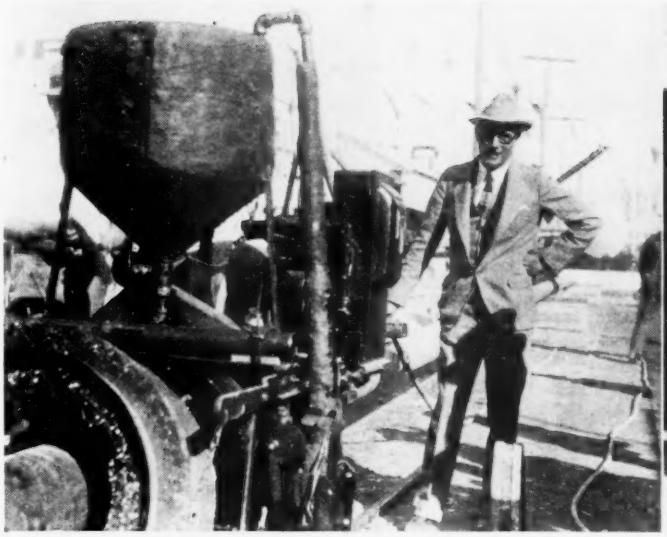
M. H. Kotzebue, Tulsa Boiler & Machinery Co., second from the left, shows his natural gasoline distillation unit to W. H. Harding, left, and S. S. Smith and F. B. Mack, all of the Roxana Petroleum Corp.

Percy Jones, president of S. M. Jones Mfg. Co. of Toledo, Manufacturers of sucker rods.

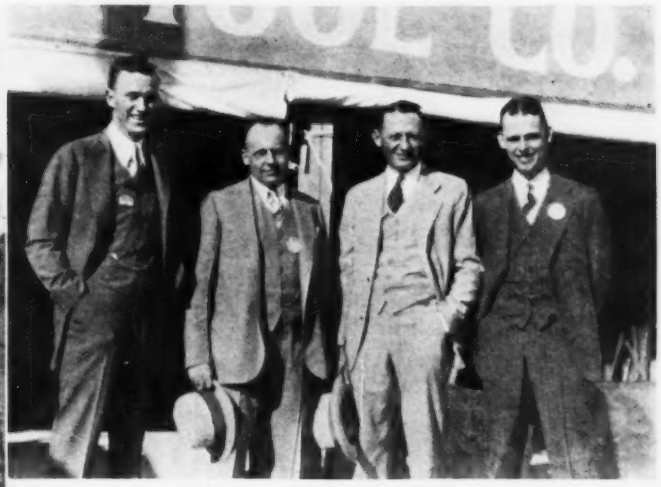


C. F. Camp of C. F. Camp Co., Tulsa, distributors of Waukesha motors, thinking out a problem of horsepower

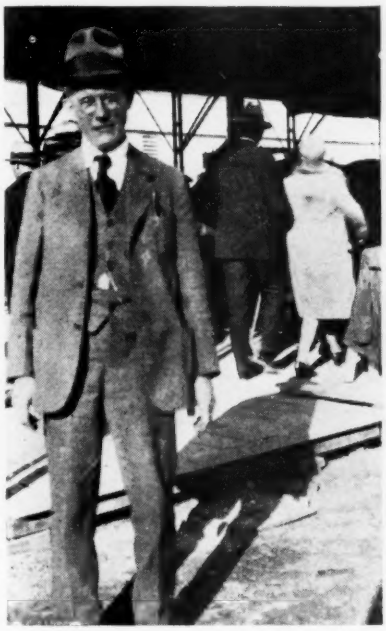
A. E. Davenport and J. T. Gossett, both of the Oil Products Appliance Co., Chicago, sold their exhibit the first day of the Tulsa show



Edgar S. Browning, district manager, Hill Hubbell & Co. beside the pipe coating machine which was demonstrated at the exposition



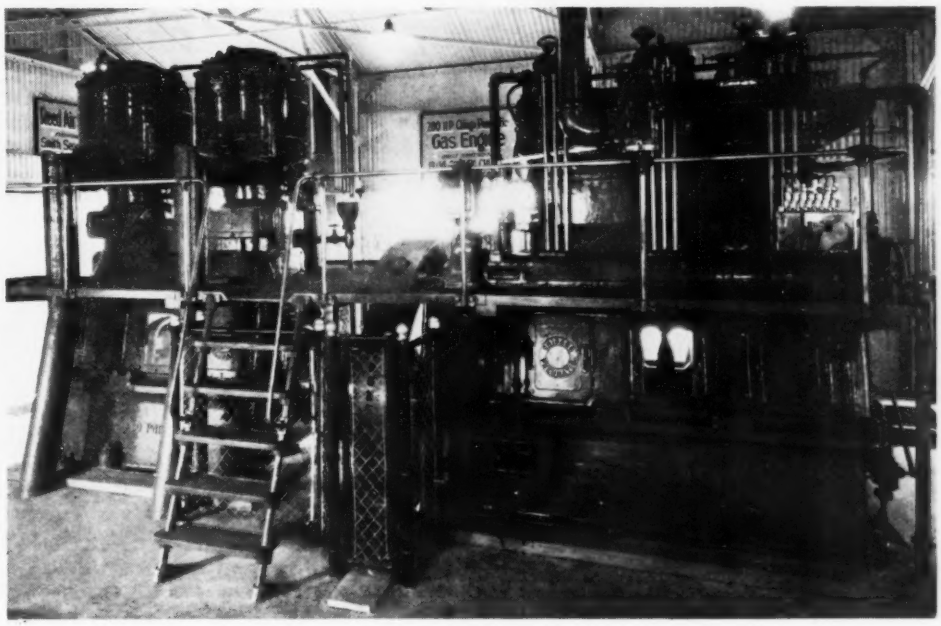
L. L. Brush, Howe Walker, H. A. Schaeffer, Ralph Neuhaus, all of the Hughes Tool Co., Houston. For the benefit of visitors the company demonstrated rock coring in their building



G. A. Spang, Spang & Co., Butler, Pa., manufacturer of Spang Weldless Jars

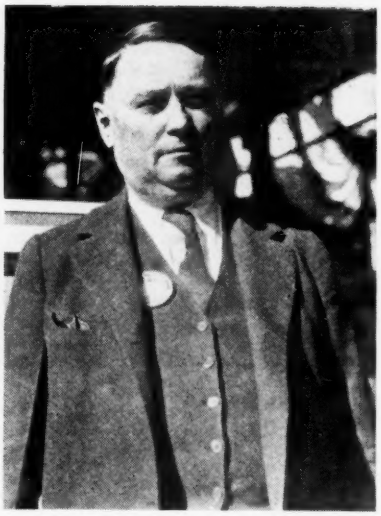
Burdette Blue, vice president of the Indian Territory Illuminating Oil Co., Bartlesville

Capt. Burt S. Shafer of Dallas, manager of the oil country tubular goods division, Wheeling Steel Corp.



Vertical gas engine direct connected to compressor unit in the display of the Chicago Pneumatic Tool Co. This company also showed a new Diesel engine as a prime mover.

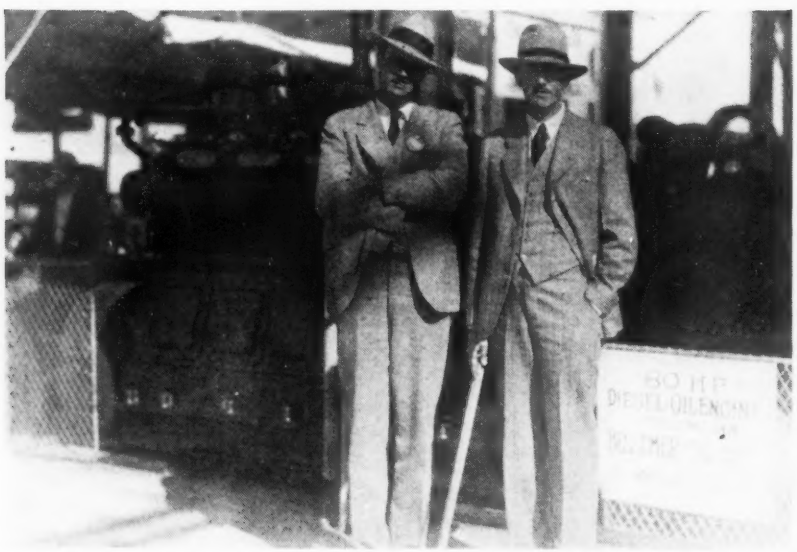
Fairbanks Morse & Co. exhibit of Diesel engine for cable tool drilling



Sam W. Smith, Tulsa district manager, Bennett Pumps Corp.

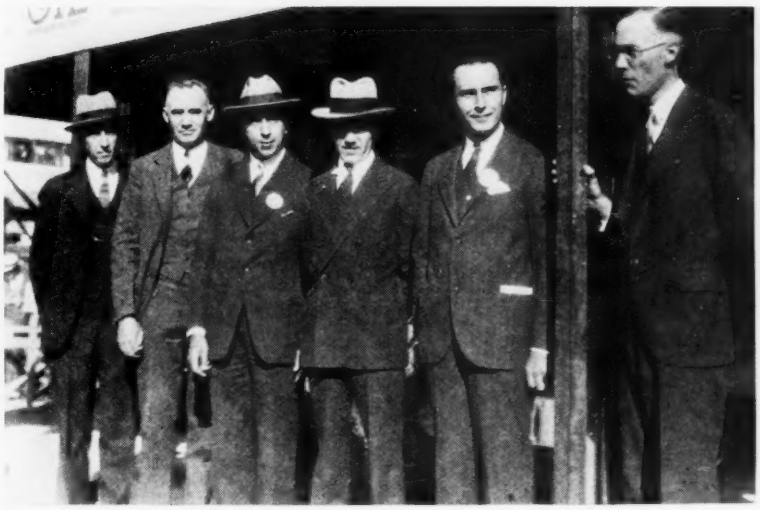
Hubert E. Allen, general manager, and Frank D. Allen, sales manager of the Alco Oil Tool Co., Compton, Texas

C. C. Grinnel and Robert M. Atmore of the Robert M. Atmore Co., distributors of fluid packed pumps



F. B. Dunlap, district manager for the Bessemer Gas Engine Co., and Harry Botsford, secretary of the Society for the Development of Combustion Engine Power standing in front of and partially hiding part of the Bessemer Gas Engine Co. exhibit

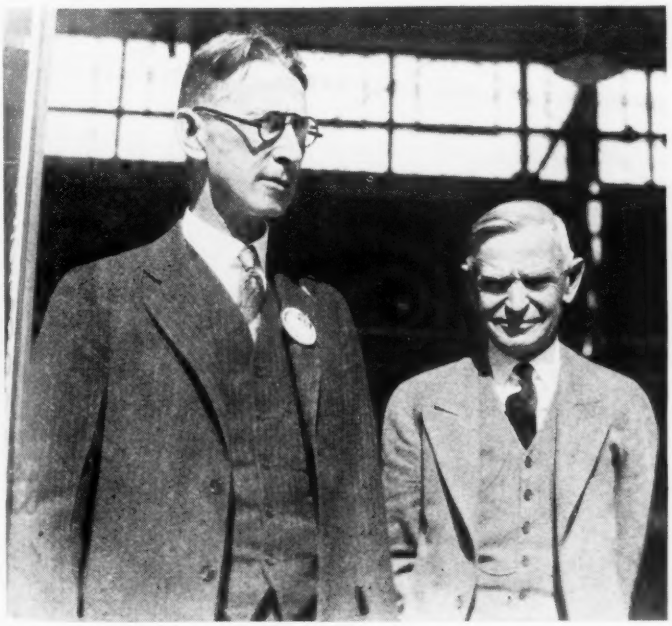
R. M. Wilhelm was in charge of the display of testing devices and technical material manufactured by the C. J. Tagliabue Mfg. Co.



B. C. Thiel, H. A. Gehres, F. H. Thomas, T. F. Hudgins, A. A. Burrell, R. L. Boyer, all of the C & G Cooper, Mt. Vernon, Ohio

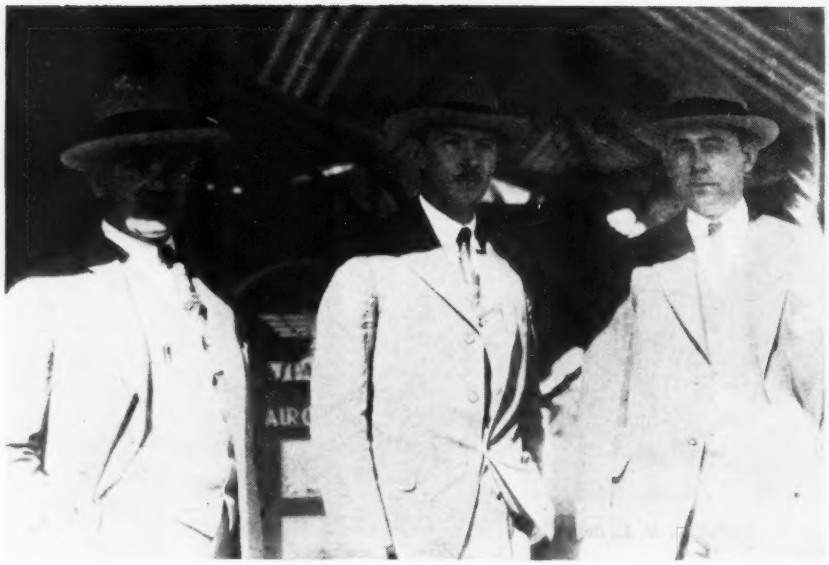
Princess Carmelleita Roddy of Tulsa, in her Indian garb gave eastern visitors a thrill—the westerners didn't fail to look either

W. C. Trout, vice president and general manager, Lufkin Foundry & Machine Co., Lufkin, Texas



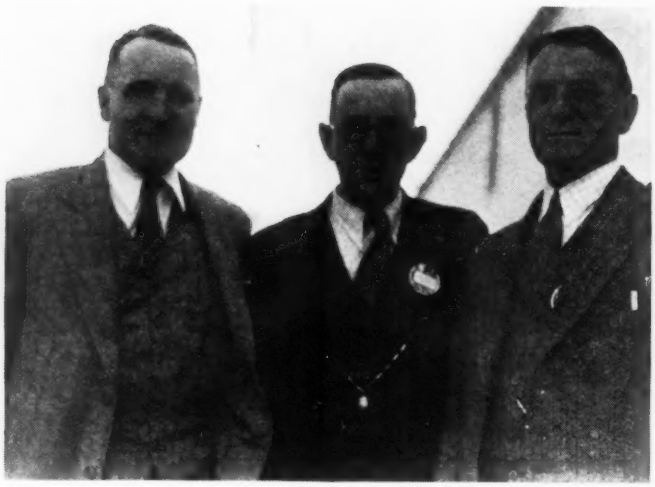
I. B. Funk, president, Engineering Research & Equipment Co., Los Angeles, and E. P. Dillman, sales manager Wyatt Metal & Boiler Works, Dallas

Thomas J. Neilan, president, Neilan, Schumacher & Co., Los Angeles

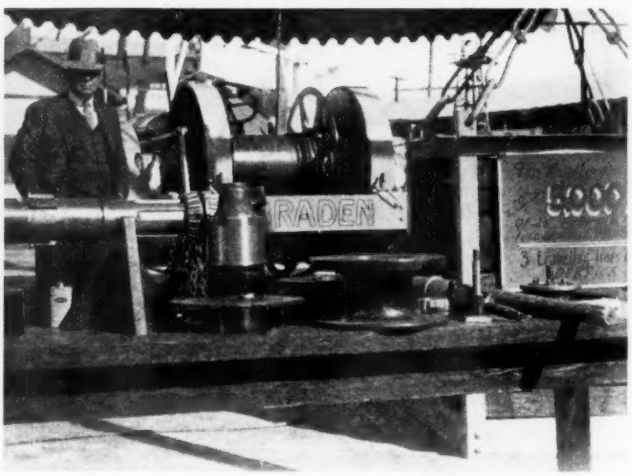


A smart two-seater was shown at the oil exposition by the Spartan Aircraft Corp. of Tulsa. The camera caught J. F. Nagle, sales manager, and Willis C. Brown, president, of the aircraft company with G. A. R. Slocum, sales manager for the Skelly Oil Co.

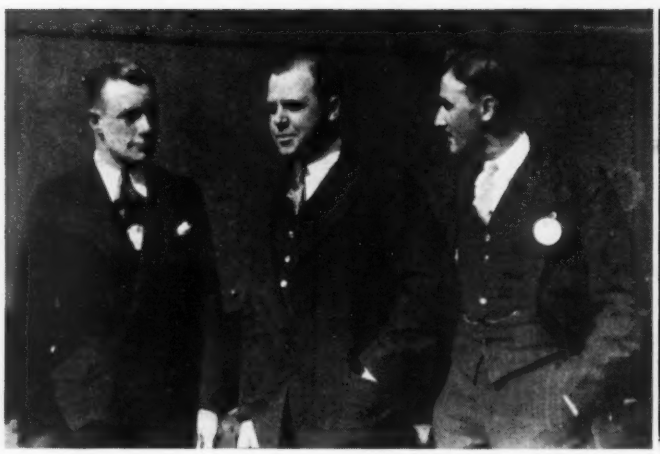
Robert L. Ozias of the Stoody Co., Whittier, Calif.



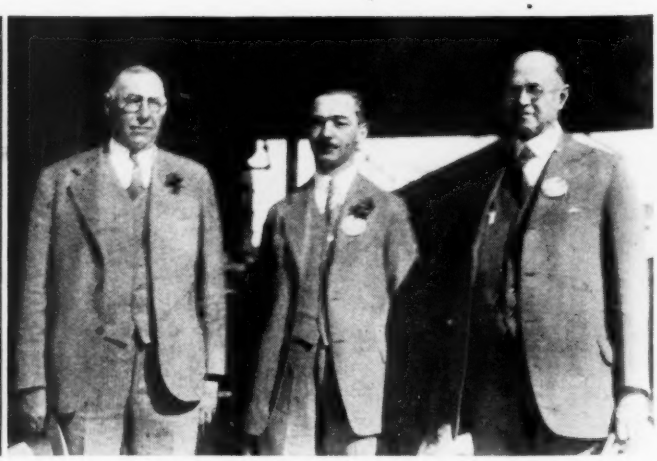
K. B. Keyerleber, Fred Adams and G. E. Wise of the Sherwin Williams Paint Co., Cleveland



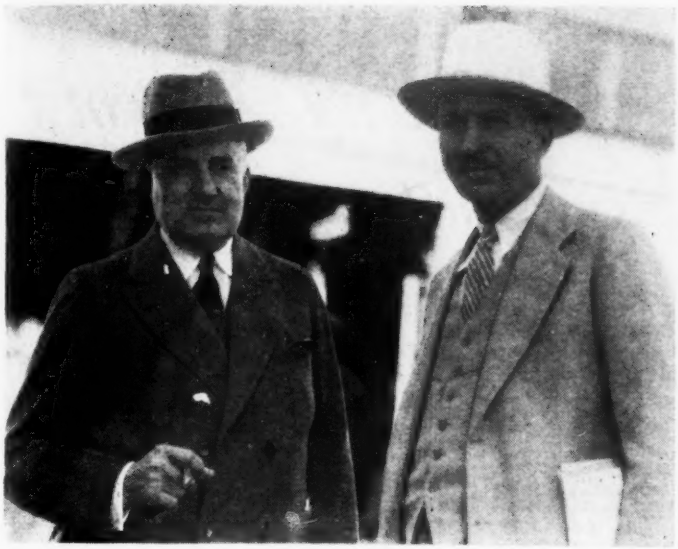
L. V. Hopkins, Tulsa distributor for Braden Steel & Winch Co., looks around for a possible customer



H. W. James, H. H. Fleming, president, and W. H. McGunagle of the Oil Conservation Engineering Co., Cleveland



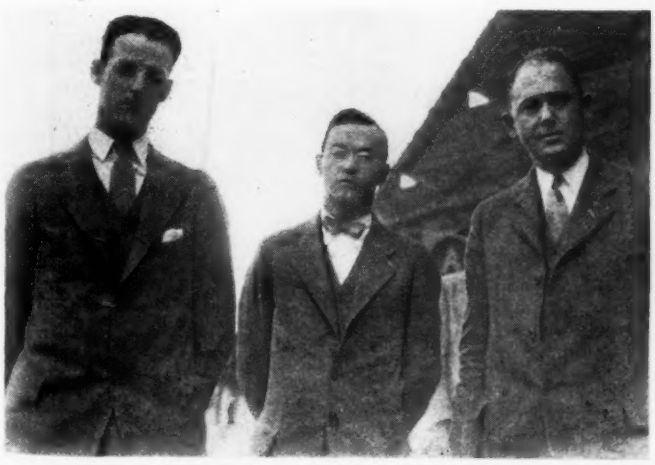
E. W. McCay, W. B. Jennings and E. N. Layfield of the Hope Engineering & Supply Co., Mt. Vernon, Ohio



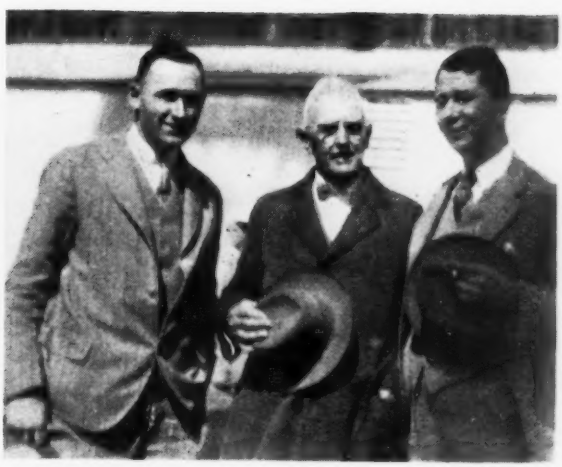
L. M. Butler, sales engineer, American Radiator Co., Chicago, and Dr. C. M. Alexander, Imperial Refining Co., Tulsa

Band Wheel Shaft Counterbalance for pumping wells shown by International Derrick & Equipment Co.

LeBaron B. Johnson and V. D. Smith came down from New York to demonstrate the cleaning qualities of Oakite, produced by the Oakite Products, Inc.



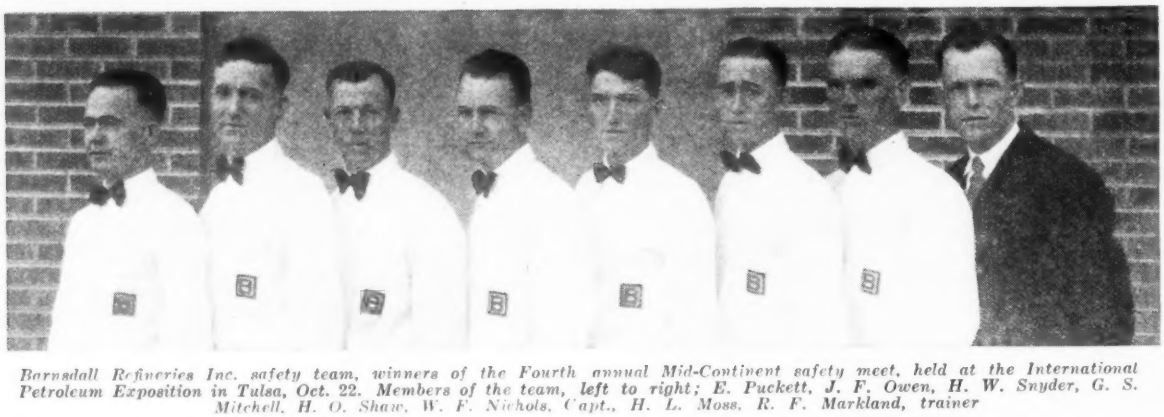
J. W. Elizarchi, J. W. Causland and K. B. Millett of Griscom-Russell Co.



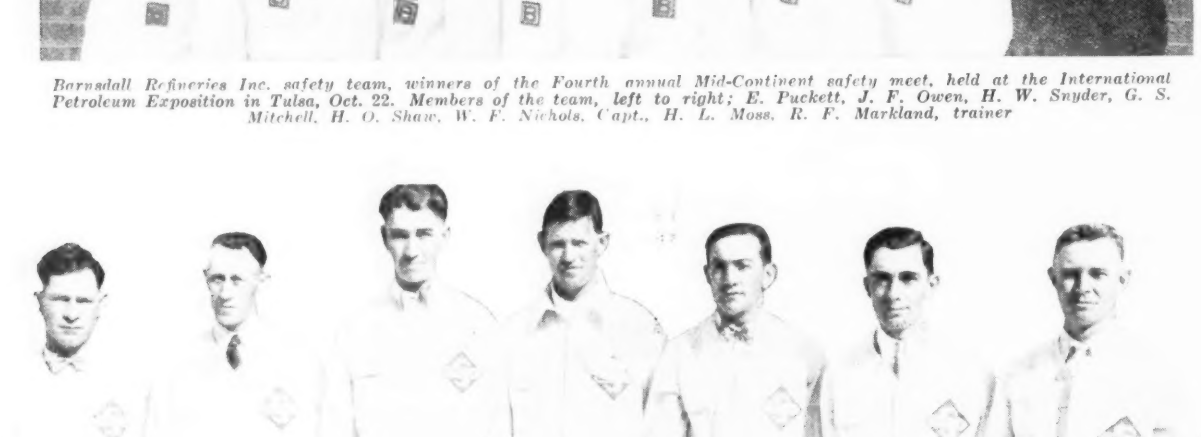
J. D. McEwan, chief engineer, Lee C. Moore, president, and Walton Reese, vice president, Lee C. Moore Co.

Oil Company Teams in Safety First Meet at Tulsa "Expo"

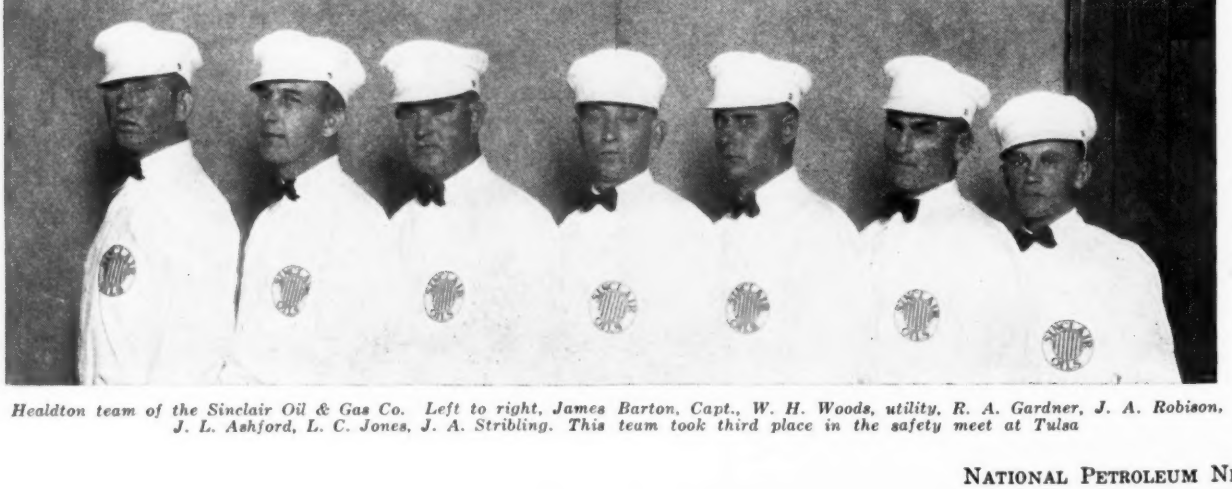
Don J. Wallace, director, safety division, Mid-Continent Oil & Gas Association, and C. Woinarosky, Steaua Romana Oil Co., Bucharest, Roumania



Barnsdall Refineries Inc. safety team, winners of the Fourth annual Mid-Continent safety meet, held at the International Petroleum Exposition in Tulsa, Oct. 22. Members of the team, left to right; E. Puckett, J. F. Owen, H. W. Snyder, G. S. Mitchell, H. O. Shaw, W. F. Nichols, Capt., H. L. Moss, R. F. Markland, trainer



Left—Skelly Oil Co. safety team which took second place. Left to right, W. P. Johnson, Henry Fleig, Roy Hurd, W. B. Wood, Clyde Wright, J. E. Smith, Homer Gilbert, Capt.



Healdton team of the Sinclair Oil & Gas Co. Left to right, James Barton, Capt., W. H. Woods, utility, R. A. Gardner, J. A. Robison, J. L. Ashford, L. C. Jones, J. A. Stribling. This team took third place in the safety meet at Tulsa

Texas Corp. Vice President is the New Head of the Marland Oil Co.

CLEVELAND, Oct. 30

THE oil industry in the Mid-Continent believes some sort of hook-up between the Marland Oil Co. and The Texas Corp. is being effected.

This is because of the election to the presidency of the Marland Oil Co. Oct. 29 of Dan J. Moran, vice-president in charge of production of The Texas Corp.

Marland directors are in New York but all efforts to reach them up to the time NATIONAL PETROLEUM NEWS went to press were fruitless.

At the offices of The Texas Corp., President R. C. Holmes was in conference and could not be reached. It was said there, however, that nothing had been heard of a possible consolidation with Marland.

If The Texas Corp. is not involved it is altogether possible that Marland is in the final stages of a thorough reorganization, which began last spring in its operating subsidiaries.

The election of Mr. Moran came as a surprise to most persons in this industry, because in all the recent gossip about mergers of several large oil companies, there had been no linking of the names Texas and Marland.

It was said at The Texas Corp.'s offices that Mr. Moran had resigned the vice-presidency, effective immediately. Mr. Marland resigned his office as president Oct. 29, effective at once. He is remaining on the board of directors.

W. H. McFadden, a vice-president and large stockholder of the Marland company, also is reported to have resigned. He and E. W. Marland were large stockholders in the company. Mr. McFadden had left New York today, it was said at the Marland offices. C. C. Brown, a vice president, who is reputed to be the J. P. Morgan & Co. representative on the Marland board since Morgan bought heavily into the company several years ago, could not be reached at the Marland office, the Morgan office or the hotel where he is registered.

Crude production of the Marland Oil Co. at this time amounts to a little less than 40,000 barrels daily gross. Of this amount about 14,000 barrels is in California and 15,000 in Texas with the rest in Oklahoma and Kansas. Additional to this is the 2000 barrels produced in Mexico.

Acreage in Oklahoma and Kansas totals about 350,000 acres besides the gas lease on 345,000 acres in the Osage reservation. Acreage in west Texas amounts to about 700,000 acres. In New Mexico, where the company has been a persistent wildcatter, acreage includes about 400,000 acres in federal permits and 75,000 acres leaseholds. Sizable amounts of leases are held in Colorado, California, Wyoming, Louisiana and Arkansas.

The Texas Corp. operates in a producing way in all these areas.

The Marland company has about 650 miles of trunk and gathering pipe lines, 225 miles of gas lines and 12,000,000 barrels steel storage.

The Marland refinery at Ponca City is one of the largest complete plants in the Mid-Continent field with a crude capacity of 35,000 barrels per day, of which approximately half can be run down to wax. The plant is equipped with four large Dubbs units, two Cross units and 18 Fleming stills. Products of the refinery are shipped in a fleet of 1000 Marland owned tank cars.

The company has 339 service stations and 304 wholesale stations in 11 states of the south and middle west including Texas, Oklahoma, Arkansas, Kansas, Colorado, Missouri, Iowa, Nebraska, Illinois, Indiana and Kentucky, all states in which The Texas Co. has distribution.

The Marland refinery produces paraffin base Mid-Continent lubricating oils which differ in many respects from the type of lubes advertised by The Texas Co. and sold through all its stations.

The company has a number of natural gasoline plants producing approximately 60,000 gallons per day.

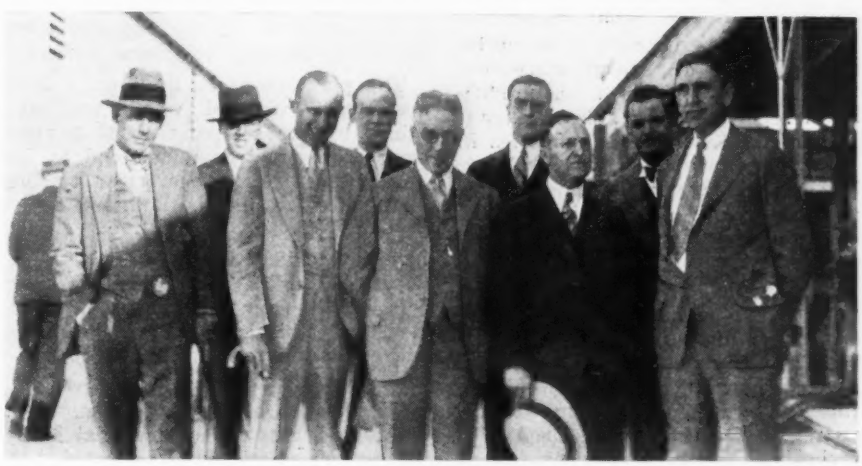
In 1924 and 1925 J. P. Morgan &. Co. purchased 635,000 shares of treasury stock in the Marland Oil Co. Of this amount 300,000 shares were bought at $30 per share in 1924 and 335,000 shares were bought in 1925 at $39. This gave the Morgan interest 27.4 per cent of the outstanding stock. Mr. McFadden has been reported to have owned about 15 per cent of the stock. The McFadden, E. W. Marland and Morgan stock is thought by some to total more than 50 per cent of the amount issued.

Mr. Moran, the new president of the Marland Oil Co., was born at Cygnet in the old northwestern Ohio oil field. When a boy his parents moved to Lima, O., where he still was under the influence of petroleum and where he worked in the oil fields during vacations.

He was graduated from Case School of Applied Science, Cleveland, in 1908 with the degree of bachelor of science in mechanical engineering, and went to Tulsa where he was employed by the Oklahoma Iron Works a short time before he joined The Texas Co. that year. He worked as a telegraph operator, pumper, gauger, connection foreman, station foreman, and on various leases and stations until 1910, when he was transferred to the Port Arthur Works of The Texas Co. to do special research work.

In 1911 Mr. Moran was made sales engineer in the fuel oil sales department. From 1912 to 1916 he

Also at the Tulsa Petroleum Exposition



R. L. Armitige, Smith Separator Co., Paul Elfers, The Fisher Governor Company, C. C. Herndon, E. C. Kirby, Smith Separator Company, Jake Eige, The Fisher Governor Company, Jim Gibbons, Victaulic Company of America, L. W. Browne, The Fisher Governor Company, J. A. Morgan and S. V. Dillon, Smith Separator Company

was chief engineer of construction and maintenance at the Port Arthur works. Early in 1917 he was placed in charge of construction at the Tampico and Agua Dulce works, and on pipe line projects in Mexico. In 1919 he became general superintendent of the southern terminals of the company and in 1921 became vice-president and general manager of The Texas Co. of Mexico, S. A., in which capacity he served until he was placed in charge of the producing department of The Texas Co. in 1922. He was elected vice-president of the company March 29, 1924. He had his headquarters at Houston for a while and later was transferred to New York.

Talk of Big Company Mergers Echoes in Wall Street

NEW YORK, Oct. 29

RUMORS are filling New York that several of the larger oil companies shortly will be consolidated. Companies most prominently mentioned are Sinclair Consolidated Oil Corp., Prairie Oil & Gas Co., Standard Oil Co. of Indiana, Marland Oil Co., and Atlantic Refining Co.

The latest two mergers formed by the Wall Street conversationalists are of the Sinclair and Prairie, and the Sinclair and Atlantic. The talk about Sinclair and Prairie is old and its substance has been published. Briefly it is this:

Standard of Indiana will purchase Sinclair's half interest in the Sinclair Crude Oil Purchasing Co. and the Sinclair Pipe Line Co. Standard of Indiana already owns a half interest in each company.

Divested of its crude oil purchasing company and pipe lines, Sinclair Consoliated would merge with the Prairie Oil & Gas Co. giving Sinclair a new crude oil purchasing organization with production and refining and marketing facilities in the middle west and Rocky Mountain territories. The lines of the Prairie Pipe Line Co. would be used to transport the Sinclair-Prairie crude from the Mid-Continent and to the Sinclair refinery at East Chicago, Ind., and to the Gulf Coast for tankering to the Sinclair refinery at Marcus Hook, Pa.

The Prairie would receive an outlet for its crude oil which since the beginning of Seminole flush production is reported to be a heavy financial burden. Sinclair has refineries in Kansas, Louisiana, Indiana, New York, Oklahoma, Pennsylvania, and Texas. Prairie, through its subsidiary, the Producers & Refiners Corp., has plants in Oklahoma and Wyoming.

The Standard of Indiana would be left with a pipe line system that extends from the Gulf to the Great Lakes and westward to Casper, Wyo. Its crude handling facilities would be improved by the acquisition of full ownership of the Sinclair Crude Oil Purchasing Co. which now has around 35,000,000 barrels of crude oil in storage. Presence of Prairie directors in New York for several days has set tongues to wagging more rapidly.

Atlantic Refining is drawn into the merger talk by the announcement of the Sinclair Consolidated that Arthur W. Cutten, former Chicago grain operator who has been one of the most active operators in the present bull stock market, will be elected a director at the next meeting of the board.

Cutten now is credited with having bought the Rockefeller stock in Atlantic Refining several months ago. It was intimated at the time the stock was sold that it had gone to Blair & Co., Inc., New York investment banking house, and Chase Securities Corp., the investment subsidiary of the Chase National bank of New York.

These banking interests have engineered many an oil company merger and have floated many an oil company bond issue. Early last year after the merger of the Tide Water Oil Co. and the Associated Oil Co., an official of Blair & Co. said it was not entering the oil business but acting only as a banker. That statement undoubtedly holds good today and if Blair and Chase bought the Rockefeller stock it probably was for some third party—possibly Cutten and his associates in stock market operations.

W. M. Irish, president of Atlantic Refining Co., today said he did not know of any merger movements involving his company and he had not scanned any recent list of stockholders to see whether the name Cutten was on it.

It is doubtful that a three-cornered deal involving Sinclair, Prairie and Atlantic Refining could be consummated. Prairie and Atlantic are both former subsidiaries of the old Standard Oil Co. of New Jersey and would not be permitted to consolidate because of the Supreme Court decree of 1911 which dissolved the old Standard of New Jersey.

While Sinclair and Atlantic overlap in part of their operations chiefly in refining and marketing on the Atlantic Seaboard, Atlantic's refining capacity would help Sinclair through the southern Atlantic states and Sinclair would strengthen Atlantic's crude oil supply.

Roxana Plans 30,000-Barrel Refinery at Houston

CLEVELAND, Oct. 29

IMMEDIATE construction of a refinery with a capacity of around 30,000 barrels of crude a day on the Houston ship channel, is planned by the Roxana Petroleum Corp., subsidiary of the Shell-Union Oil Corp., according to a statement of U. de B. Daly, president of the Roxana, over the long distance telephone today.

The plant is to be built on a 600-acre tract of land which was obtained by the company about a year ago. This tract is understood to be in the Deer Park area, close to the plant of the Sinclair Refining Co.

Crude for the refinery is to be furnished chiefly through a pipe line, about 450 miles long which is now being built from McCamey, Tex., to Houston. This is to be a 10-inch line with a capacity of about 30,000 barrels a day.

Construction of the new refinery has not been begun and no material is on the ground as yet, Mr. Daly said, but it is being ordered. The present plan is to make it chiefly a skimming plant. Mr. Daly said that the question of what type of cracking equipment would be used, if any, had not been decided. He said also that there would be no lubricating oil or asphalt refining equipment.

These facts cause speculation as to whether the new refinery will perhaps be operated in conjunction with the plant of the New Orleans Refining Co., another Shell subsidiary, at Norco, La., just up the river from New Orleans.

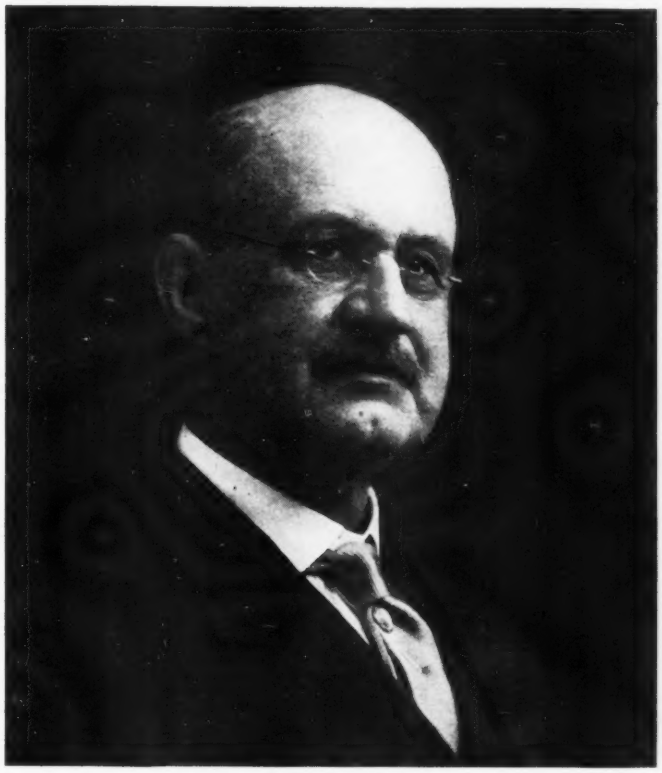
The New Orleans plant has Dubbs cracking stills and complete asphalt manufacturing equipment, together with considerable new distillation equipment that has been put in during the past year. It seems likely that crude from the West Texas fields might go first to the new skimming plant at Houston for stripping its gasoline and kerosene content, and then the reduced crude might be run by tanker and barge or possibly, though less likely, by pipe line, to the New Orleans plant some 400 miles away. There it would be run down to asphalt, yielding overhead distillates which would serve as charging stock for the Dubbs stills.

'The Judge' Dies: 25 Turbulent Years He Guided The Independents

By Warren C. Platt
EDITOR

THE man who probably did more for the Independent oil industry the past 25 years than any other single individual, died last week.

He was C. D. Chamberlin—affectionately and nationally known as "The Judge." For more than a score of years he was the secretary and general counsel of the National Petroleum Association, and he made of it the strongest and most effective oil organization that has operated over such a long period. And it is today stronger than ever. "The Judge" nursed this association from a precarious infancy, through the years of the biggest inter-oil industry fighting, won victories by the hundreds—and he saw emerge from this riotous period a new oil industry, larger and more prosperous than he had ever dreamed of—and an industry that came to honor and love him, from coast to coast, in Standard and Independent oil offices alike.



'JUDGE' C. D. CHAMBERLIN

The man died as simply as he had lived, back on a farm near Clinton, Mich., near where he had spent some of his boyhood days. And he was buried in a small village cemetery at Bedford, O., just south of Cleveland, where he had been born and lived for a while as a boy and later returned to begin his long, active business life.

The great change which has come in the oil industry the past few years was strikingly marked by his burial. The blasts of the cold rain of an early winter that kept the few of his older friends from going from the services to the chilling wet of the cemetery, were indicative of the winter of life that has come to the old guard of his generation. Most of them went before he did. Of the remaining few, some were away in gentler climate, or held in their homes by sickness. Young men carried his coffin and young men predominated even among the honorary pallbearers. Representatives of the new oil industry laid to rest the veteran of the old, from whose energy and mind the new had partly been born.

Mr. Chamberlin died suddenly Wednesday afternoon, Oct. 24. He had been feeling fine and had just returned from a trip to the village where he had remarked to his friends that he never felt better in his life. He was walking into the house when his heart failed, from angina pectoris. Life left on the instant. Short services were held at his Michigan home followed by services at Cleveland Saturday afternoon Oct. 27.

"The Judge" had been in poor health for a number of years, the trouble being with his heart. He tried to come back several times but finally had to give it up. The association retired him with compensation. He bought a good sized farm in Michigan and moved to it with his son Carl.

They fitted the home up with all the modern conveniences and installed the latest machinery on the farm and the judge this past summer enjoyed it, though he did not feel able to indulge in his favorite pastime of years, bait casting, on the nearby lakes that he had fished even as a boy. There is another son in business in Cleveland, Will. The daughter and Mrs. Chamberlin died several years ago. He has two half-brothers in Michigan.

"The Judge" was born on a farm near Bedford, 74 years ago. He moved to another farm in Iowa, returned to Michigan when early in his 'teens and then to Bedford. He had a country school education and when most boys are going to high school, he, through necessity, was teaching a country school. But he always was a tremendous reader, from boyhood to his death. When still a boy he started reading law in a law office at Bedford but had to give that up to earn a living, little thinking that when he was past 50 he would return to that same reading of law and become one of the oil industry's outstanding legal authorities.

From the law office he went to clerking in a store, was married and for a time owned a country grocery store. Those who knew "The Judge" can well imagine the genial atmosphere of that store and the generosity of its quarts and pounds. No matter what his opportunities as to trade, location and all, "The Judge" never could have made any money feeding people for a profit. The needs and pleasures of his friends and customers would always have been first—the profit would have received scant attention; as probably was the case with this store, if the writer remembers correctly some of "The Judge's" later comments on it.

Along in the early eighties "The Judge" came to Cleveland and got into the oil business, finally being one of the officers of the Buckeye Oil Co. As such, one day, he ran into the dominating interest of the Ohio Oil Co., of Findlay, O. This man was soured on the oil business and told "The Judge" he was then on his way to "26 Broadway"—the headquarters of the Standard—to sell out.

This was in New York. "The Judge" finally got a 24-hour option on the property, and as train service in those days was not what it is now, he tried to get his people back home by telegraph to come into the deal. He failed and the first owner of the Ohio Oil Co. went on down to the Standard office and sold out what became one of the biggest and most profitable of the old Standard subsidiaries and what today is one of the biggest and best producing companies in the world.

Later on "The Judge" became secretary of the old Globe Oil Co., a lubricating oil jobbing company. Its first northwest agent was W. H. Barber, a young oil salesman of Cleveland. It was from this start that Mr. Barber developed his big organization at Minneapolis now known as the W. H. Barber Company. "The Judge" organized the Pacific coast business for the old Globe and lived at San Francisco for a number of years. Then he returned to Cleveland and purchased a chair factory at Bedford. This was a disastrous venture and it took him some years to pay up all its indebtedness but this he did.

He come back to the Globe oil company temporarily to reorganize its affairs and there he said he had one important business fact driven home to him—that it is wiser to stick to one thing and do it well than to dabble in many things. When he had left the Globe previously it was selling only petroleum products and making money. When he returned he found it had suffered from ambition and had taken on many specialties to sell to engineers and others, such as waste, monkey wrenches and many other things, so that it was almost completely out of the oil business and losing money. "The Judge" put it back into the oil business and into the use of black ink on its balance sheet.

It was here that the oil industry found "The Judge" and made him the first paid secretary of the National Petroleum Association. A brief picture of the oil industry in those days is necessary to a clear comprehension of what "The Judge" did for the industry. The thousands of men who have come into the oil business since probably little realize the state of those times.

It is best that they be forgotten anyway, except to give you this picture of this leader of the industry and to what peace and concord he finally led his associates.

For years the oil industry had been torn with battles of great bitterness. Most other businesses of the time suffered the same way but not to the same extent. What might be called the second generation of the oil industry had grown up in western Pennsylvania and West Virginia and northwestern Ohio, starting in the eighties and early nineties. Various floods of oil had come on the market, southeastern Ohio, the old Lima-Indiana field and Illinois, each broke the market to a nickel or so a barrel and most of the producers with it. Refineries were small and sold only to jobbers, who even 20 years ago this winter numbered scarcely 200 the country over.

There were three outstanding factors in the oil business at that time; first the Standard's control of crude oil both as to price and quantity through its ownership of all except one pipe line; second, the Standard's domination of the railroads both as to service and freight rates. The tonnage of the Standard was used to force cash rebates, not only on Standard shipments but also on Independent shipments—and the same was true in all other lines of business—and the tonnage was also used to put into effect a system of freight rates which were most advantageous from Standard refining points and most disadvantageous from Independent refining points; third the Standard pursued a policy of cutting distributing prices in one town or district to get control of the business and made its customers in the surrounding territory pay the loss by raising the price to them. There were many ramifications and much detail to all this, but this outline can give the oil man of today some idea of the kind of an industrial fight that was on 25 years ago.

This fight centered around the Independent refiners in western Pennsylvania, and Ohio. In 1902 conditions were so bad that these refiners got together and tried to fix up some price agreements which were not then outlawed by statute. But as in all those cases in every industry, the agreements didn't work.

At last it was seen that the trouble was more fundamental, that what made prices bad had to be attacked; that meant the Standard Oil Co. and the freight rate situation. Frank B. Fretter, then secretary of the young National Refining Co., and now its president, presented the new plan of operation at a meeting of the refiners at Oil City, Pa., Feb. 7, 1906, and recommended employing a secretary and going ahead. A committee consisting of W. E. Wall, then president of the association and president of The Fred G. Clark Co., Mr. Fretter and T. B. Westgate, manager of the American Oil Works, at Titusville, Pa., were authorized to find and hire such a man. They did about April 1 and that man was C. D. Chamberlin. He shortly hired Fred W. Boltz for a traffic expert and the new association had started.

Mr. Chamberlin participated in all the government investigations and prosecutions of the Standard group and there were many of them. At the same time he was pounding down the excessive freight rates from Independent refining points to somewhere near the rates from Standard points.

The fighting on the Standard direct was more spectacular but economically the battle on the freight rates was far more important, yet it is doubtful if so much could have been done without the furore that was raised against the Standard, for the whole country and men in all lines of business, had to be educated to a new business viewpoint.

When "The Judge" took charge of the association's affairs the Interstate Commerce Commission, by direction of congress, was starting an investigation of the relation of coal and oil to freight rates. "The Judge" pitched into this fight and through several score of witnesses from the Independent oil industry of the day, showed the throttle-hold that the excessive freight rates from Independent refining points had on competition to the Standard.

The report of the commission caused congress to enact such legislation as gave the commission power to correct rates and other shipping abuses. Prior to that time the commission had practically no power and was laughed at by railroads and preferred shippers.

Immediately following this came the famous investigation of the oil industry by Secretary of the Department of Commerce and Labor, James R. Garfield, under the direction of President Roosevelt.

This investigation went into minute details of the oil business and "The Judge" was the chief collaborator with Mr. Garfield. The report was probably the most scathing that any government has brought down against any industrial group and it marked the passing of the old order in industry.

This was followed by the prosecution of the Standard group which resulted in its dissolution in 1912. Here again Mr. Chamberlin was the government's right hand man, working in the closest manner with Frank B. Kellogg, now our secretry of state, then a lawyer of prominence from St. Paul. All the time there were numerous forays by states and in local lawsuits in which "The Judge" actively participated.

Unless one has been through an investigation or a lawsuit of this magnitude one little realizes the amount of work. The writer was in the daily newspaper business in Cleveland at the time "The Judge" was first employed by the association and had as his chief assignment, what "The Judge" and his associates were doing. It was due to the need of those men for a publication which could speak their cause to the oil industry that the writer in 1909, while the fight was at its height, got enough oil companies to pay for their advertising six months in advance and

started this paper, in February of 1909, just 20 years ago this winter.

During the years of this legal fighting "The Judge" and his associates were all over the country, digging up testimony, and running down documentary evidence and getting it into the record of the case. He sat at the trial table most of the many days of the hearings, cooperated on the government briefs and, if it may be told now, was consulted by the government and the courts as to the character of the favorable decision which the Independents finally won.

And all the time there were legislative battles, over oil and gasoline inspection, the anti-discrimination laws, freight rates and other things going on in the legislatures of a score and more of states. In these too, "The Judge" was always active and generally the chief instigator of them and general in command.

When the dissolution decree was won "The Judge" and Fred Boltz and the association devoted their time for many years following to knocking down the excessive freight rates from Independent refining points. This was slow work. A single rate or group of rates would have to be attacked by complaint before the Interstate Commerce Commission or before a state railroad commission, many of which had been brought into real life through the efforts of "The Judge." There would have to be evidence gathered first, witnesses procured, a hearing, then briefs and often oral argument. Quite a few hundred of these complaints were filed during the succeeding years and nearly all of them were won.

These new lower rates marked the real effective beginning of the Independent oil industry as it is today. As these rates were broken down the Independents spread over more and more territory and grew. Due to this work jobbers were already in existence in profitable numbers to permit the quick development of the Independent refining industry of the Mid-Continent field when that blossomed up from 1908 and 1910 and on.

"The Judge" and this association were not partial to one section of the country. Some western refiners joined the association but they were small in those days and the bulk of expense continued to be paid by the Independent refiners of the east. This eastern group, through "The Judge," made as big and as important and generous a contribution to an industry as any ever did, in this many years' battle on freight rates, for they let "The Judge" open the way to the middle west jobbers whom the easterners had brought into existence, by getting lower rates from Mid-Continent refining points and lower state rates for wider distribution of western products.

Without question, the development of the Mid-Continent refiners would have been materially held back had the task of getting reasonable freight rates been left to them after they came into existence. And the jobbers would have had still greater difficulty and delay in getting started.

All this battling took energy and strength and "The Judge" paid heavily for it. For many years, for illustration, seldom a week went by that he was not out of town for most of the week. When he passed the 60-year mark he continued to travel just as if he was a youngster with his first sample case. "The Judge" added to his physical burden by studying law. After his work had developed he found himself materially handicapped by his lack of membership before the bar. He knew the law but he wasn't a lawyer. He had to call in outside lawyers at times to represent him which was not always satisfactory.

So he took a correspondence school course in law, the only thing he could do because he had to carry on his heavy grist of work for his association members. It took "The Judge" several years to do the reading necessary to pass his examinations, and that reading he did after the day's or night's work was done, and many a night the reading ran to 3 and 4 o'clock in the morning.

"The Judge" was always blessed with a big body and tremendous reserve strength. But he never was quite as husky after these years of legal cramming and heavy daily work and constant traveling. Once admitted to practice he took on a lot of legal work and participated in many of the oil industry's important cases before state supreme courts and the U. S. Supreme Court.

Fayette B. Dow, who succeeded "The Judge" as general counsel of the National Petroleum Association and who had many years of association with him, by which to properly value him, said of "The Judge" in his history of the association, written for the celebration of its twenty-fifth anniversary:

"As secretary and later general counsel, Mr. Chamberlin was to become one of the outstanding men in the early organized efforts of the oil industry. Although he began the practice of law in middle life, he became an effective lawyer and the soundness both of his character and judgment guided the association wisely during the two decades in which he was mainly responsible for its courses of action.

"Our written history does not record the date of his affectionate promotion to a judgeship, but 'Judge' Chamberlin he has been called for years and shall be so known in the pages of this book. A fair dealing man himself, he took up his tasks when fair dealing in business within the industry was one of the chief objects of the association.

"At a time when righteous indignation might have prompted a bitter denunciation of some of the business methods of the day, Judge Chamberlin worked quietly but persistently for the betterment that he sought. Words from a letter, quoted in full in a later paragraph, transmitting his first report, truly characterize not only the work of those early months, but of all the years in which he was active.

"'Our fight has in all instances been in the open, fair and frank,' he said, 'and our constant appeal to court, commission or the people is for a square deal.' Judge Chamberlin had the breadth of soul to distinguish between a wrong and the men who did it.

"When a battle was over and its smoke had been blown away, his adversaries found that he loved them. Always kindly, always mild in manner, he found cooperative effort congenial and one cannot doubt that he contributed much to that aptitude for forming genuine friendships, which is now a tradition, a living heritage of the association.

"Creditable and important as were the results of Judge Chamberlin's many legal efforts, it is as a friend and wise counsellor that we like best to think of him. He belongs to what someone has finely called the aristocracy of the heart."

Honorary pallbearers at the funeral of C. D. Chamberlin were: William Muir, Warren, Pa.; Daniel Cavanaugh and M. A. Brewster, The Pennzoil Co., Oil City; Fayette B. Dow, general counsel National Petroleum Association, Washington; Frank B. Fretter, president, National Refining Co., Cleveland; W. T. Holliday, president, Standard Oil Co. of Ohio, Cleveland; W. E. Wall, Wall & Steigerwald, Cleveland; Louis Carruth, president, Canfield Oil Co., Cleveland; Ben W. Browne, president, Great Western Oil Co., Cleveland; Fred W. Boltz, formerly traffic manager of the National Petroleum Association; P. S. Tarbox, general manager, The Independent Refining Co., Oil City; and Warren C. Platt, editor, NATIONAL PETROLEUM NEWS, Cleveland. Mr. Muir was unable to attend on account of illness and Mr. Dow was detained in Tulsa.

Active pallbearers were: Ernest A. Feazel; H. J. Saenger, formerly secretary to Judge Chamberlin; Roger B. Stafford, NATIONAL PETROLEUM NEWS; John C. Willing, vice-president and general manager of Cities Service Oil Co. of Ohio; George B. Marty and Hubert B. Fuller, of Chamberlin, Marty & Fuller, Cleveland.

7500 Pounds of Gear Grease This Season At One Station, His Goal

By Ward K. Halbert
N. P. N. STAFF WRITER

CHICAGO, Oct. 25

SALES of gear compound at the main service station of the Erie Oil Co., Sheboygan, Wis., averaged less than $5 a month during the autumn season of 1925.

They exceeded $175 during the fall season of 1927, and sales for 1928 are passing that record. The actual figures are in an accompanying table.

How did they do it?

That question has no short, simple answer. It was brought about in several ways. At first the management just stuck to business and studied its job. Between the 1925 and 1926 seasons it built an enclosed grease pit so work could carry on in the winter.

Between the 1926 and 1927 fall seasons the company started a steaming and thawing service for frozen cars and installed an automobile lift of their own make and design. The net result was that they had to institute 24-hour service to meet peak demands and that too brought additional business.

Between 1927 and 1928 they built a $10,000 addition to their station, which tripled its capacity. Now they can take care of the complete lubrication needs of 80 cars a day. Recently they inaugurated a "call for and deliver" service with cars of customers who want lubrication service. In the meantime they have advertised in five different ways.

AVERAGE monthly sales of gear compound at the main service station of the Erie Oil Co., Sheboygan, Wis., during the fall and early winter season of the past three years.

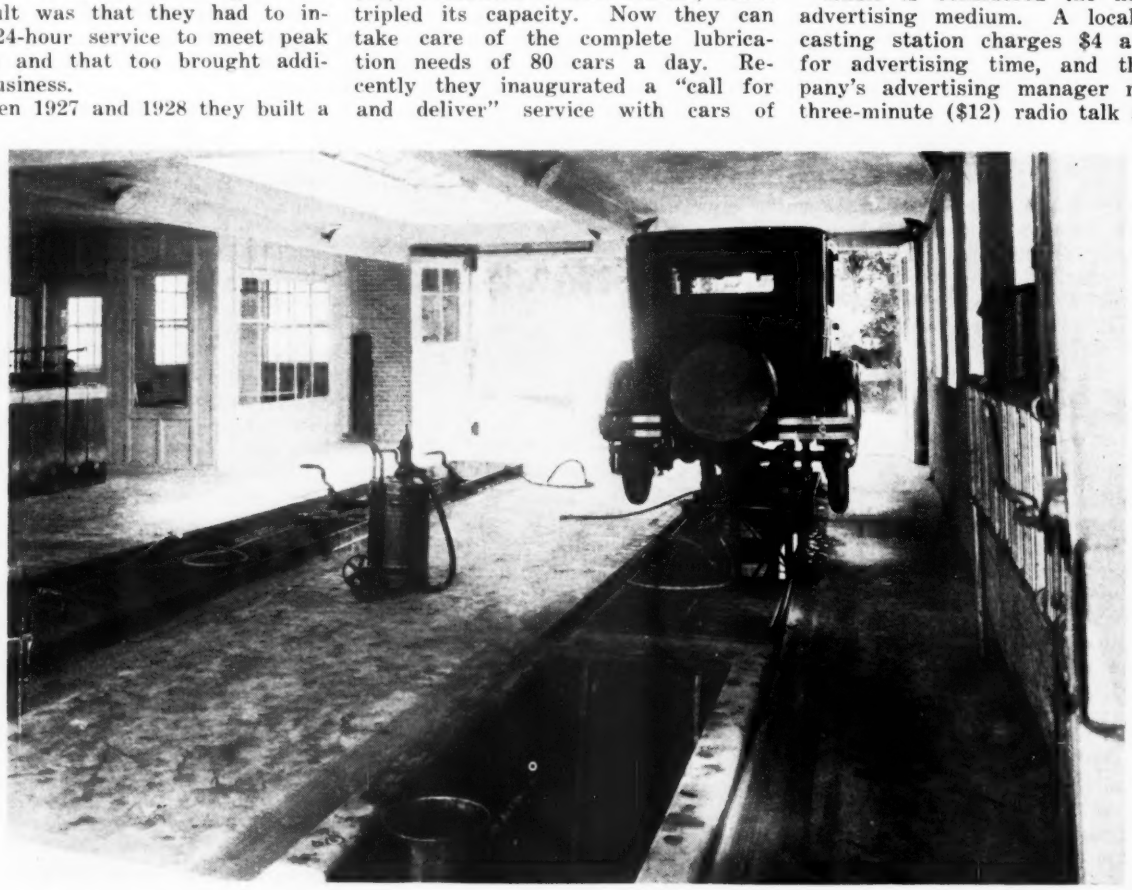
The star after the figure for October, 1927, sales fixes the time at which the company installed automobile lifts in its greasing pits. What the effect has been on sales of grease is explained in the latter part of this article.

Year	Oct.	Nov.	Dec.
1925	$6.00	$4.40	$2.75
1926	9.75	18.50	7.00
1927	38.25*	233.95	259.20
1928	295.80 (Up to Oct. 20 only).		

In the order of their value to the business as the company executives see it, the different advertising methods are: verbal comment, radio talks, direct mail, newspapers and posters—both paper and painted. The first two are not conventional media and require a little explanation.

Favorable "word of mouth" advertising always results from prompt, generous and pleasant handling of damage claims. Of course the company does not court claims, but it welcomes each as an opportunity to please a customer whether the company considers the claim entirely justified or not. That kind of advertising cost the company $123.16 in 1927 and they consider it the best publicity they bought.

Radio is considered the next best advertising medium. A local broadcasting station charges $4 a minute for advertising time, and the company's advertising manager makes a three-minute ($12) radio talk as often



Interior of Erie Oil Co.'s greasing station at 14th and Erie streets, Sheboygan, Wis., looking from front to back. Drain pits are in the foreground. Greasing pits equipped with automobile lift are beyond. One has a car lifted for service. Observe enclosed waiting room at the left. Five of the ten lube tanks are visible in the alcove to the left

as there is a message he wants to deliver quickly and forcibly to the motorists of Sheboygan.

So far, all the company's direct mail advertising has been done with postal cards, addressed on its own addressing machine and printed with its own duplicating machine. In no sense are they "fancy" mailing pieces. But they have the virtue of economy and brevity and they get results. The Sheboygan Chamber of Commerce maintains a live list of townspeople with automobile owners segregated from others. Erie Oil Co. buys the automobile list once a year for $5.

On Oct. 25 the automobile owners of the city were receiving a postal card telling them winter is coming and they should have winter grease in their gears if they hope to get the most service and comfort out of their cars.

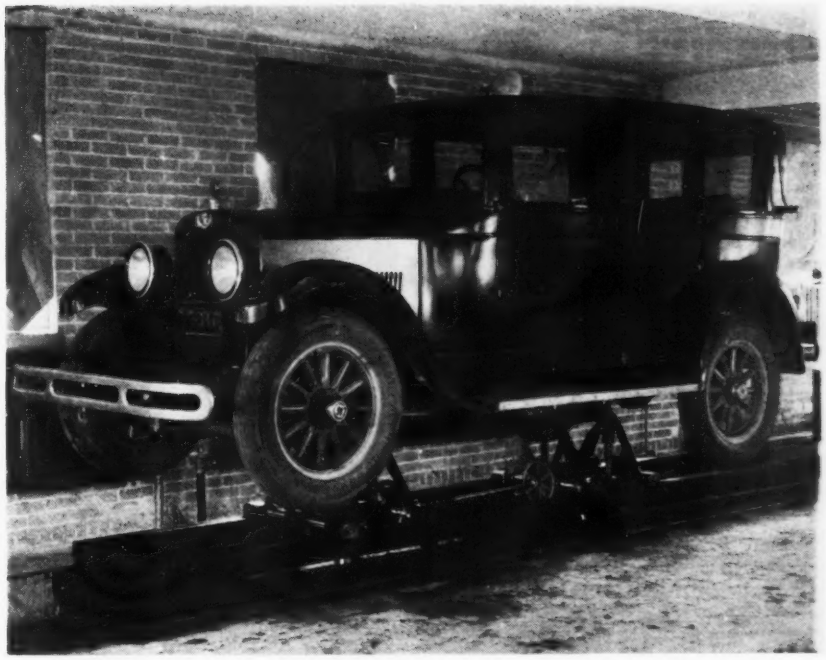
The company is a consistent buyer of newspaper space. Only occasionally, however, does it use large space, as, for example, when it announced 24-hour service at its station. Erie Oil Co. also buys outdoor advertising extensively. They own their own painted boards. The paper boards are handled through the local bill poster, and Marland Refining Co., their Group 3 supplier, furnishes the paper. Thus the paper posters are devoted largely to gasoline while the actual business is mainly devoted to complete lubrication.

The increased volume in gear grease sales mentioned in the first paragraph of this story is only an illustration of the result of practical sales effort. Erie Oil Co. is a jobber in every sense of the word and its station at Fourteenth and Erie is full fledged. The seasonal gear grease business affords an item of easy yearly comparison. As a source of annual income chassis lubrication business is much more important, however.

As a gasoline outlet the Fourteenth and Erie station is not to be despised. The filling station lot has three double driveways, so eight automobiles may be in reach of two grades of gasoline at the same time. The competitive grade is 60-62, 400 e.p. and the high test 64-66, 375 e.p. There are two air and water towers on the lot and they are carefully placed out of the line of traffic. As a gasoline station it has always earned its maximum discount under the terms of the Q. D. A.

Counting the quarts of motor oil sold on the drive and the crank case changes inside the lubrication station, Erie Oil Co. sells more than four drums of motor oil a week at this one location. It is a "bum" Saturday when the sales do not exceed 55 gallons.

Most of the crank case fills of motor oil are accompanied by chassis greasing jobs, because the company has been hammering away in its advertising for three years that oil should be renewed and the chassis greased at the same time—every 500 miles.



This picture shows a "Relax Lift" in action. It was designed and built by a member of the firm of the Erie Oil Co. When not in use the lift disappears into the grease pit. The car being greased does not need to be more than six inches off the floor. The workmen operate from a platform in the pit

During the summer of 1928 an average of more than 15 cars a day came in for chassis greasing and a spring bath. Those in charge say they will not be satisfied until that number has been raised to 30 cars a day.

Erie Oil Co. is less than four years old although its personnel has been associated together for many years. It did not create much excitement in April, 1925, when the news got out that somebody was building another oil station in Sheboygan. It was on a doubtful corner near the edge of town, the lot adjoining H. J. Blocki's pad mill.

Oil men drove by and looked the place over as competitors are accustomed to do, and the sight made them glad to learn the enterprise was in good hands. It was a "side track station" with tank car storage on the lot, a perfect layout for a price cutter. Although the better residence sections of town were far away, the location was only a few blocks from the main retail shopping district.

But it was not a cut price station. Mr. Blocki himself was behind it and the oil men of the town knew he could be trusted to experiment in the oil business without demoralizing it. It is just one of 40 drive-in stations in a town of around 40,000 population; but it now sells lubrication to scores of customers who insist on buying their gasoline elsewhere.

"We plan to sell 7500 pounds of gear compound this season," said M. N. Filz, secretary of the company recently. "We figure the town represents a market for 32,500 pounds of transmission and differential lubricant a season, and that 7500 pounds is our share of it.

"Every time a car comes into the station for oil change or chassis lubrication all during the year, we check the gear housings to see if there is enough lubrication there and we fill them if they need it, whether the customer is present or not. Most of the gear compound is sold in the spring and fall, however."

What an automobile lift, rightly used and rightly advertised, will do for a complete lubrication station was demonstrated about a year ago in Sheboygan. In the little table of figures at the first part of this article, a point between October and November, 1927, is indicated by a star. It was then that the lubrication business started its upturn.

Certainly the use of a lift was no direct bearing on the process of putting grease in gear boxes, nevertheless that was the time the first lift was installed in the station. The lifts they have are the only ones of the kind in use, for the first one was designed and built in the shop of Mr. Blocki's pad mill by A. W. Shultz, who now is treasurer of the Erie Oil Co.

Mr. Shultz is a mechanic, more by natural bent than by training. He has been employed by Mr. Blocki since he was 14 years old. In the early days of his career his duties included keeping the company's cars and trucks in good order. He had to grease them, and he did it in the old way, lying prone on a concrete floor, armed with an automobile jack and a bucket of cup grease. It was there that he learned the use of a

jack in effective chassis lubrication.

He remembered how much easier it was to get grease to the point of friction in any joint with the weight off it. So he designed a machine to lift an automobile by the frame, letting wheels, springs and axles suspend idly from it. In this position they can put grease into the most obstinate, dry connection with a pressure gun, and lubricate the springs with a paint brush. The automobile is relaxed, just as if it were standing on four jacks.

All the machinery of the lift is below ground, installed in the basement of the station. The four grease pits in the building are actually oblong openings in the concrete floor surrounded by steel guards like any other grease pit, but below grade it is one big basement.

When an automobile stops over a pit the lift comes up out of the hole at the will of the operator, and raises the car only until it is relaxed. The automobile tires never need to be more than four inches off the floor. The greaser works from a platform in the pit that rises and lowers with the rest of the lift. Regardless of whether the lift is up or down, the workman is always the same distance from his job.

Two other of Mr. Shultz's inventions are in every day service in the station. One is a flusher for gear housings, so large that it can be used on two automobiles at once and having enough storage for flushing oil in its system that it can wash the gears of 50 cars without requiring fresh oil.

The flusher is permanently installed in the basement. It is a pump made of a piece of two-inch pipe, nine-inch stroke, operated by a quarter-horsepower motor. The pump draws kerosene from a steel drum that stands underneath it and drives the kerosene into the gear housing through a nozzle. The softened gear grease, mixed with kerosene, is forced out of the housing and into an empty drum nearby, used for a catch basin, where the heavy substances settle to the bottom.

This pump can also be used to lift the heavy residue from the bottom of the catch basin, leaving the lighter oil on top to be used again as flushing oil. This residue is given away to friends who want it for settling dust around industrial plants or on stretches of unpaved road. Crank case drainings go along with it.

The steaming equipment for gear housings is also a development of Mr. Shultz's ingenuity. Steam from the boiler in the basement is piped to an outlet through a hose at each of the four grease pits. To prevent the workmen from burning their hands on the hose, a knob of soft pine wood provides a hand-hold at each nozzle.

No steam is ever put inside of a gear box. But in cold weather each housing is heated from the outside with dry steam so that all the dry, caked grease can be removed from the housing and gears. This is done even on warm days if the grease in a car is particularly obstinate.

The same steam outlets are used in winter to thaw out frozen cars. No charge is made for this service. Any Sheboygan motorist who is so unfortunate as to have his car frozen at any point, radiator or oil pump, may take refuge to Erie Oil Co.'s station for a steaming. Mr. Filz says, besides making friends for the station, it encourages people to drive their cars in winter. They are assured that a little freeze is not necessarily disastrous, or even costly.

The automobile lifts, the gear flusher, the steaming equipment and a 100-pound alemite grease gun providing grease under pressure at three outlets on each pit constitute the equipment in the lower level of the station. The coal bin is in the basement and there is also storage room there for a carload of package goods. The boiler in the basement provides steam heat for the whole building as well as dry steam to work on cars with.

On the main floor of the station there are four pits in sight of the drive. They are in two rows, accessible through a double door wide enough for two automobiles to enter at once. The first two pits are used entirely for draining and greasing gears. The second pair of pits are equipped with lifts and are used exclusively for chassis lubricating.

All four pits are under a skylight which enables the workmen to have natural light in day time. The night crew has ample electric lighting from above and below. On the upper floor also are three outlets for water, three outlets for compressed air, and a vacuum cleaner on a 14-foot hose. Three 100-pound guns for gear grease also are kept on the main floor.

At one side of the room are ten 60-gallon motor oil tanks of the rectangular type. They carry five grades of Marland motor oil in two qualities, retailing for 25 and 30 cents a quart respectively. In one corner of the compartment is a waiting room with clear glass on two sides so a customer may sit there and watch his car serviced.

The station employs seven regular men and two extras. The extras work late afternoons and early evenings all week, Saturday afternoon and evening and all day Sunday and Sunday evening. They get in almost a week's work, but are paid by the hour. They are not schoolboys, as one might guess at first, because the management considers filling station work a man's job. They are bank clerks. They work with the bank management's consent.

Erie Oil Co. has one service station besides the one at Fourteenth and Erie with the bulk plant in the back yard. It is in a residential section of Sheboygan and as a gasoline station does a creditable business. It has a grease pit but no lift and customers from that part of town drive by it and come down to the main station, even for gasoline sometimes.

"High priced, close in, business property is not at all necessary for a successful service station," Mr. Filz says. "Space is a much more desirable feature. You do not have to take gasoline and oil to your customers. They are willing to drive a few blocks for what they want. Small sites in residential sections are all right for gasoline outlets, but for lubrications you need space."

Since the "call for and deliver" service was offered by Erie Oil Co., they make a practice of going after three to 15 automobiles a day. Sometimes all their business is handled on that basis. However, they do not offer this service on Saturdays. The service is open to all classes of customers, even truck fleet owners, but ordinarily only women take advantage of it.

When a woman calls up and says, "Come and get my car and fix it up," her name and address is taken on a job ticket at the station. Then two men visit her home in one of the company's cars. The second man in the car goes along to drive the customer's car back. He rings the front doorbell, meets the day customer there, and takes her instructions about what to do to her automobile. The order is recorded on the same job ticket which he started at the office with telephone information.

When the car is brought to the station and serviced the man in charge of the station checks the job ticket over to see if all the customer's instructions have been complied with. Then he puts his initials in the corner of it. Each job ticket is in triplicate. When the greasing job is returned to the customer the ticket is separated. The original goes back with the car to the customer. The duplicate is put on file and the third is used to post a loose-leaf book in the company's office, a "permanent lubrication record." It is held for 60 days and destroyed.

Prices at the lubrication station are in line with those for such service elsewhere, higher than most such price scales in towns of that size. Gear compound sells for 40 cents a pound, put in the gear boxes. Chassis jobs range between $1 and $3 a car (including trucks) with 50 cents extra for a spring bath. The only exception to the rule is the model "T" Ford, which is greased for 75 cents and gets a spring bath for 25 cents. The spring bath is optional and does not go with every job.

Definite Policy of Oil Conservation Yet To Be Evolved,—Farish

TULSA, Oct. 27

LITTLE progress toward true conservation has been made, William S. Farish, president of the Humble Oil & Refining Co., told members of the Oklahoma-Kansas division of the Mid-Continent Oil & Gas Association at its annual dinner, in Tulsa, Oct. 24.

Mr. Farish, following a number of other speakers who reviewed the attempts that have been made to regulate supply to demand and of the efforts of the federal government to promote such regulation, asserted that he was unable to see that much had been accomplished and that there is better control in foreign countries than in the United States.

Remarking that previous speakers had failed to define conservation, Mr. Farish said he would supply a definition—the one that was formulated by the Committee of Nine, the joint oil industry-federal government-American Bar Association body that has drafted a bill for introduction into Congress for regulation of production.

That definition was a drawing on the underground oil resources without waste and in accordance with real demand. Proration of the proper kind he defined as a just, fair and equitable taking of oil from all the properties in the pool. Some progress had been made in handling overproduction in a temporary way, but the whole subject of conservation lacks coordination, Mr. Farish asserted.

"Our progress since the World War has been most disjointed, most haphazard," he said. "We drift along like a blind man going down a road. He has been told to go some place and he starts. He has no idea of what the road is or how long it is nor what he will do when he gets to the end. There is no definite plan in the oil industry. We run loose at both ends and frequently in the middle."

The situation is, said Mr. Farish, that we have more production in sight than at any time in history. Fuel oil has been pushed into markets in competition with coal, at less than half its true economic worth. Gasoline, the money crop, has shown profits but there is lack in the price situation of the definite relationship that should exist between oil products, all the way from crude oil to gasoline at the filling station.

Mr. Farish took responsibility for the readjustment in crude prices made in July. That was an attempt

J. C. DENTON

to interpret the wholesale price of gasoline back to the crude oil. But the rest of the chain of prices, notably fuel oil, is still out of line.

To achieve the prosperity which the oil industry should have, there must be a limit fixed on crude oil production, said Mr. Farish. There is some hope that the "money crop"—gasoline—will better its position. The yield now, including natural gasoline and benzol, is about 41 per cent of the crude oil consumed. The economic limit, he said, probably is around 48 per cent. Of that other 6 or 7 per cent of oil can be converted into gasoline, the industry may reach the time when a fair price is possible. But to reach that position, uniform plan of controlling production must be evolved.

"I believe there is a way," said Mr. Farish. "The president has called attention to it in his letter creating the conservation board. The producing industry is faced with the necessity of taking a new look at its problems and methods. The whole question is one of prosperity to the producer.

"The greatest progress will be made by voluntary action. As I see it, there are three steps necessary to a plan of control. First, we must consolidate all acreage possible on known structures. Next, we must stop financing wildcats on acreage that is not consolidated. Finally, after these measures have been taken and a pool is brought in that threatens to upset the balance, we must prorate, with the help of the state governments.

"There must be authority in the state governments to stop the waste of gas and the above-ground storage of oil better left in the sand until needed. It is up to the producer to establish this control, not to the purchaser or the refiner.

"If we go on as we have been, we will not have prosperity until there is a shortage of oil which will be from lack of supply—when the resources have been squandered—and that shortage will be permanent."

For the first time, producers of different states came together in open discussion of the methods that are being used to hold down production. J. B. Collett, of Fort Worth, was the spokesman for the Texas operators.

He said that the operators in that state, in their efforts to limit their production to the market demand, had displayed the best spirit of cooperation he had ever seen among men in an industry.

"Proration, or, to use the broader term, conservation, is here to stay," said Mr. Collett. "It must be voluntary or we will have the job done for us under the police powers of the state and federal government. In that event, we would get more of it than we care for. The people have decided that they have an interest in the natural resources and we are going to hear more of it as time goes on."

Mr. Collett criticised the Oklahoma operators for their failure to restrict production to greater extent than they have. He said that Texas has more oil shut in than Oklahoma is producing. Oklahoma operators are benefiting from the suffering in Texas, he said, and intimated that there is considerable dissatisfaction as a result. Texas operators, he remarked, will grow tired of carrying the whole burden and there may not always be displayed the willingness to shut in production that there has been.

R. F. McArthur, vice-president of the Barnsdall Oil Co., spoke for the Oklahoma operators. He outlined the various steps that have been taken by them and said that their efforts had done much to keep the situation from being worse than it has been.

He said that federal and state authorities must give their assistance to the work of curtailing production and he believed that the time is here for some national leader in the industry to assume the responsibility of co-

ordinating the efforts in the different states.

Two years ago, the thing that Mid-Continent producers have done voluntarily would have been called impossible, said Judge A. L. Beaty, former head of The Texas Co. They have conserved without a conservation law. He could imagine no set of laws that would have effected the result that has come from voluntary effort.

Under the system of land titles in this country, it is a difficult thing to achieve true unit control, Judge Beaty said. He remarked that several years ago he evolved a plan under which owners of a pool would organize themselves into a trust, with a managing board, and operate the pool as a unit.

"It would surprise you," said Judge Beaty, "how flat it fell. Nobody took the slightest interest in it. The oil man wants to operate his properties free of all interference. He will put them into a plan for curtailing production, but he wants them back as soon as he can get them. Under our system of titles this is the inevitable result.

"I applaud that system of titles. My belief is that if the government had owned the petroleum we would not today be standing head and shoulders above the rest of the world in all industrial matters. Probably the Drake well would not have been drilled, certainly that event would not have been followed up the way it was."

Dr. George Otis Smith, director of the U. S. Geological Survey, said that in the past four years more than three billion barrels of oil have been produced which is a greater amount than was produced in the period between the drilling of the Drake well and the beginning of the World War. In that four years, he said, an intangible—rather difficult of definition—progress has been made. That is the trend of the industry toward self-regulation.

Dr. Smith said he believed the federal oil conservation board had helped in furthering the spirit of cooperation. Much of the route is still ahead, however, he said.

"The thing most needed is some provision for rule by the majority," said Dr. Smith. A minority, frequently a small one, is able to block progress in proper development of a pool. I do not know the legal aspects of the case, but such an arrangement is un-American and uneconomic. The public interest is better served if measures are adopted by majority rule."

Dr. Smith gave credit to Henry L. Doherty for enlisting the aid of the federal government in the oil situation. Mr. Doherty, he said, persuaded Washington that an effort should be made to call attention of the industry to the dangerous course it was pursuing.

"Certain criticisms have been made of the first report gotten out by the oil board," said Dr. Smith. "The criticism was on the repeated use of the word 'cooperation.' That was done deliberately. The board believed and still believes that the operators themselves should settle their questions to the fullest extent possible. I can assure you that the same policy of informal, sympathetic help, will be followed by the board in the future."

The first speaker of the evening was Gurney E. Newlin, of Los Angeles, president of the American Bar Association, who traced the development of law, pointing out that the body of law changes in accordance with the needs of the people. He referred to the bill drafted by the committee of nine as an example of how the public interest enters into the formulation of law.

This bill, which will be introduced in the next session of congress, exempts the oil producer from the operation of the Sherman anti-trust law insofar as it enables him to enter agreements to curtail production to market demand.

Earlier in the day, annual election of officers of the Oklahoma-Kansas division was held. All officers were reelected. J. C. Denton, vice-president of the Mid-Continent Petroleum Corp., is president; C. C. Herndon, vice-president of the Skelly Oil Co., first vice-president; A. M. Landon, vice-president for southern Oklahoma and J. H. Kane, vice-president of the Phillips Petroleum Co., vice-president for northern Oklahoma. Harry H. Smith, soon to complete his tenth year in the association, was reelected secretary-treasurer, which position he also occupies in the general Mid-Continent Oil & Gas Association.

To the executive committee were added J. T. King, of the Kingwood Oil Co., Okmulgee; J. E. Crosbie, Independent producer, Tulsa; John A. Fryer, Cardinal Oil Co., Tulsa; E. R. Perry, chairman of the board of the Superior Oil Corp., Tulsa and S. E. Wolff, Oklahoma Power & Light Co. (formerly the Sand Springs, Home interests).

C. C. Brown, vice-president and general manager of the Marland Oil Co. was named on the executive committee to succeed J. K. Cleary, formerly of the same company; Alvin Richards, Pure Oil Co., succeeds the late Howard N. Cole; A. M. Blow, vice-president and general manager of the Amerada Petroleum Corp., succeeded John M. Lovejoy, who resigned from the Amerada several months ago and Harry H. Rogers, president of the Exchange National Bank, of Tulsa, succeeded the late J. J. McGraw.

Repressuring Plan Drafted For Santa Fe Springs

LOS ANGELES, Oct. 27

THE committee of 18 appointed by Santa Fe Springs operators to devise a plan to conserve gas in that field, met Oct. 26 at the Chamber of Mines & Oil, Los Angeles, with all members present.

A. C. Rubel, Union Oil Co., submitted the draft of the repressuring plan for application in Santa Fe Springs. Paul Gregg, of the Union Oil Co. and chairman of the committee of attorneys that participated in drawing up the plan, explained its workings. Then there was a general discussion.

Committee members were asked to take the draft of the plan back to their company executives and attorneys for constructive comment and criticism. It was suggested that such criticism be made in writing and forwarded to Mr. Gregg not later than Oct. 31, so that it could be digested by the time the committee meets again Friday, Nov. 2.

The secretary reported the action taken by the operators' general committee on the resolution suggesting the adoption of gas conservation measures at Signal Hill. He said a technical committee had been appointed to investigate the possibilities for gas conservation at Long Beach.

The committee then turned to a discussion of the resolution offered by Joseph Jensen, Associated Oil Co., at its last meeting, with reference to curtailment of production at Santa Fe Springs. After considerable discussion, Mr. Jensen withdrew his previous motion and offered the following substitute, which was seconded by Mr. Rubel and unanimously passed:

"It is the sense of this committee that, whenever the gas production at Santa Fe Springs exceeds the usages in the field and the demands of the gas companies and the demands of repressuring and storage projects and a genuine surplus exists, a plan of curtailment should be adopted to meet the situation then existing, both as regards physical conditions and conservation needs; that the details of such a plan shall be equitable to all operators in the field; and that, for the purposes of working out such a plan, it is hereby provided that the chairman appoint a committee of three, which shall submit its findings at the meeting of this committee to be held next Friday."

The chair then appointed Joseph Jensen, Associated Oil Co., B. E. Parsons, General Petroleum Corp., and J. U. Stair, Shell Oil Co. of California, on this committee. The meeting adjourned until Nov. 2, when the committee will again meet at the offices of the Chamber of Mines & Oil.

Free Transportation to Chicago Meet For Those Who Join I.O.M.A

By Ward K. Halbert
N. P. N. STAFF WRITER

CHICAGO, Oct. 27

RAILROAD fare to Chicago to attend the marketing congress of the Independent Oil Men of America will be returned to every oil jobber who joins the association while he is there. Of course "joining" does not simply mean signing an application blank. The applicant must be approved by existing members and accepted in regular fashion. But the machinery will be all set up to carry out those details at the meeting.

If an oil jobber takes advantage of that proposition, Lou Harrington, manager of the I. O. M. A. points out, his railroad fare will be only one-fourth of the cost of the transportation under ordinary circumstances. Reduced rates on tickets to Chicago during the week of the convention have been allowed by all railroads on the familiar certificate plan, as follows:

The oil man on his way to Chicago tells the ticket agent at home where he is going and why, and asks for a certificate. The local agent in his home town gives him a certificate which is good for half the price of his fare back home after it has been signed by Lou Harrington or somebody designated by him. If the visitor happens to join up in the I. O. M. A. while he is at the Stevens hotel in Chicago, Nov. 19, 20 and 21, his fare to Chicago is returned to him. Thus he gets the whole trip for the half fare back home.

"I will tell you what we will do," said Mr. Harrington, after he had figured out the probable cost of the first proposition. "We will do better than that. If the man lives so close that his railroad fare costs less than $15, we will pay him $15 anyway and we will throw in the registration fee for good measure."

This last offer is the climax of a series of prizes to be given away at the coming convention. The first prizes announced were 10 to be awarded by lot on the last day of the meeting. They will vary in value from $20 to $200. Oil men will get chances on these prizes by visiting the booths of the exhibitors and registering there. The prizes will be bought with money subscribed by the exhibitors.

Five prizes valued at about $10 each will be awarded for prompt attendance at general sessions of the meeting. These will be gifts of the association. Chances on these prizes will be available only at the meeting room door. A girl will stand at the meeting room door and give out checks on the next prize drawing, only until the scheduled time for the meeting to open. After that she leaves and those who come receive no check and have no chance at the prize.

LOU HARRINGTON

In addition to the foregoing there will be two prizes worth about $50 for the oil man who brings with him the largest number of guests and for the one who signs up the largest number of members during the meeting. Also there will be a prize for the man who travels the greatest distance to reach the convention. Mr. Harrington suggests that a return ticket home would be a suitable prize for him.

Several other prizes have been announced previously. The silver cup award will be made to the I. O. M. A. member who can exhibit the best newspaper and direct mail advertising campaign in his home town and state. Then also, the five-minute speaker who makes the best address will be awarded a bronze plaque, the trophy of the organization's president, E. H. Hilpp, Kentucky Consumers Oil Co., of Louisville.

Paul U. Deer, secretary and treasurer of the I. O. M. A., has been made chairman of the oratorical contest committee. He is not like most association secretaries. He is not part of the office personnel but is identified with G. W. Deer & Son, an oil jobbing firm of Crawfordsville, Ind. He recently issued the rules of the speech making contest as follows:

"Time limit of five minutes must be observed.

"Speaker must talk on subject approved by the organization.

"Copy of speech must be submitted to headquarters by Nov. 15.

"Award will be made on merit of subject matter and delivery.

"Winner may hold trophy one year only and not compete again.

"Each winner's name shall be placed on the trophy.

"Winner must present trophy in good condition at I. O. M. A. headquarters before the opening day of the following annual marketing congress, and it shall be held by the association any year in which it is not competed for.

"Only 10 members may compete for the trophy at once. In the event that more than 10 members register in advance for the contest, a preliminary elimination contest may be held.

"Only a person holding a membership in the I. O. M. A. or an employee of such a member shall be eligible to compete for the trophy. Any kind of membership is sufficient to qualify.

"The trophy shall be competed for with speeches under the general heading of 'Adventures in the Oil Business' and any of the following topics or any topic which is approved by the organization may be used in the contest. The following topics are suggested:

"The Best Selling Idea I Ever Used.

"Does the Public Prefer Branded Products?

"Oil and Grease vs. Gasoline for Profits.

"The Oil Burner for Winter Profits.

"The Independent Oil Jobber and the I. O. M. A.

"Protection, Promotion and Profit Under the New Quantity Discount Agreement."

I. O. M. A. officials have decided to publish a daily paper while the marketing congress is in progress.

Joint Export Agency Seen as Stabilizer Of Domestic Markets

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, Oct. 26

STABILIZATION of United States domestic oil markets and conservation of this country's petroleum supply are just two of the many things which a cooperative petroleum export association could accomplish. Other advantages, whenever the possibilities provided by the Webb-Pomerene act of 1918 are studied, unfold like the petals of a rosebud.

Twenty-odd of the largest oil companies are now interested in formation of a joint petroleum export association. These companies are dominant factors in our industry.

Heading the list is the Standard Oil Co. of New Jersey, whose president, Walter C. Teagle, caused an assembling of high executives of the Shell interests, Standard of New York, Tide Water-Associated Oil Co., Standard of Indiana, Standard of California, Gulf Oil Corp., Pan American Petroleum & Transport Co., Cities Service interests, Marland Oil Co., Atlantic Refining Co., Sun Oil Co., The Texas Corp., Vacuum Oil Co., Union Oil Co. of California and Sinclair Consolidated Oil Corp. in New York Oct. 15.

Executives of only a few large exporters were missing from the first important conference tending toward uniting the American petroleum exporters into a corporation that will permit them to meet most economically competition in foreign markets.

If a cooperative association is organized and into it go most of the companies whose officers attended the Oct. 15 conference at 26 Broadway, the effect on American domestic markets is bound to react to good advantage of our entire industry.

The joint export association is permitted under the Webb-Pomerene act to fix prices at which exported goods may be sold in foreign markets. However, nothing can be done that will lessen competition in United States domestic markets. But an association of the dominating large companies would eliminate a great deal of the present uncertainty of domestic markets.

The association would be in position to make more accurate surveys of the foreign markets. It would be able to regulate American production more closely to the needs of the foreign and domestic markets. The group could afford to maintain more observers of foreign crude fields and markets at a cost that would average much less than many of the companies that may enter it, are now spending abroad individually. By knowing the world's oil demands specifically, the supply could be held more closely to market requirements, thereby aiding in the conservation movement and stabilizing markets.

Another factor of stabilization would be the ability of the export company to remove from refineries at times, probably in the season of off-peak domestic demand, much of the gasoline which occasionally causes market breaks. The various members or owners of the export association could supply their quotas to its needs when it would be most convenient and when it would interfere less with domestic demand.

This movement, of course, assumes the needs of the foreign markets have been estimated as accurately as it is possible to estimate any market several months in advance.

Prices the export association could get in other fields would depend largely upon competitive conditions in other countries. However, the association could eliminate competition for the business among our nationals. How the competition in this country affects values of exports is emphasized in the summary of exports published by the Department of Commerce at Washington.

In 1927 the United States exported 43,436,328 barrels of gasoline which had a value of $210,369,625, the valuation being based on American domestic prices and not on markets abroad. In 1926 gasoline exports totaled 42,479,876 barrels which had a value of $263,199,938. Although the volume of business in 1926 was nearly 1,000,000 barrels less than in 1927, the value in 1926 was more than $52,000,000 more.

Of course, the United States domestic market will always be a highly important factor in world markets but were some yardstick developed to measure the world market and no great excess of goods produced to supply it, all markets could be put on a profitable basis yet prices could be held to a reasonable level. There would need be no bankrupt prices such as we have seen the last few years.

Again there would be conservation. Our industry like any other mining industry lives off its capital, not its income. But unlike other mining industries much of our most valuable products and fractions of our raw materials cannot be stored for long periods without heavy loss. By being able to gage foreign markets as well as domestic markets can now be gaged, there would be no incentive for bringing above ground an unnecessarily large volume of crude.

There will be for a long time at least one disturbing factor in the world markets, especially in Europe and the Near East. That factor is Russian oil. Petroleum is Russia's only money crop. It is the only export of the Soviet government that brings gold to Russia with which other goods may be purchased abroad.

Russia is pushing out its petroleum as fast as it can be produced. It produces its oil at beggarly costs. It has no capital invested except that for equipment bought abroad the last few years and this equipment was paid for out of receipts from the sale of oil from confiscated wells and confiscated machinery. Its income, therefore, is almost 100 per cent profit. And having virtually no costs attached to it like are attached to oil produced in other countries, it can undersell any other oil. And it is doing so.

There are oil men in this country and abroad who hope to get some settlement out of the Russian government for the confiscated property of foreign development companies, but the hopes now seem remote. Moscow has only recently reiterated its determination not to change its attitude toward seized properties. It has turned down a proposal that 5 per cent of its receipts from oil be sequestered for reimbursement of the original owners of the Russian oil properties. To acquiesce to that proposal would be an admission of guilt that it stole the oil wells and refineries, is the Soviet contention.

The export association would be in better position to meet this competition, its proponents point out, than if a score or more American companies compete individually with the Russian oil.

There will be one large foreign combine in the field, that of the Royal Dutch-Shell, the Anglo-Persian Oil Co. and the Burmah Oil Co. With the Shell interests in the United States cooperating with an American export association it seems likely that competition between only two great organizations in world markets might be more friendly and cut-throat competition would be confined to the Russian oil.

Review of Late Production News

A gain of 19,300 barrels in daily average crude production in the country brought production during the week ended Oct. 26 to the second highest level within more than a year. Total output was 2,523,700 barrels, compared with 2,504,400 barrels the previous week, according to American Petroleum Institute.

Crude oil imports fell off 35,143 barrels, being at the rate of 213,857 barrels daily in the week ended Oct. 26. This brought total crude supply to 2,737,557 barrels, or 15,843 barrels less than the previous week.

Production in the Seminole area continued to decrease, output falling 4300 barrels during the past week, to 312,300 barrels. Other Oklahoma fields were steady.

Panhandle district increased its output 3350 barrels. Winkler county decreased 6250 barrels and Howard county increased 2900 barrels. Spindletop also increased 2400 barrels.

Most of the 19,400 barrel gain in California daily average output occurred in the fields classified by the Institute as "others." These "other" fields, which are not listed by name, increased 16,500 barrels. Long Beach went up 4000 barrels.

Oklahoma-Kansas

DEVELOPMENT of the Mission pool, the last of the known Wilcox areas of Seminole county, Okla., is to start with the drilling of nearly 70 wells. These wells, located on a basis of two to the 40-acre tract, will start Nov. 15, but are not to be produced until Feb. 15, 1929.

Remaining locations, under the restrictive development plan adopted by the operators, will not be drilled until Jan. 1, 1929. The latter group of wells may be completed as soon as possible.

The St. Louis pool, in which production has started to decline, has been pretty well defined on all sides. Completions along the east edge of the field are but indifferent wells, in no way comparable to the large producers of the early life of the field.

Other Mid-Continent areas showed little activity. A well in the Bowers pool in Gray county, Texas Panhandle, when cleaned out, increased its production to 107 barrels per hour.

California

THE Texas Co.'s Mattern 2-7 made 4250 barrels from 149 feet of formation with bottom at 5819 feet at Santa Fe Springs, making the third producer from the new deep Buckbee zone in the field.

The Shell Co. well, the second well to reach the new sand, made 1500 barrels of oil from 20 feet of formation of which only 4½ feet was oil sand. This well did not penetrate the main Buckbee zone, and now that The Texas Co. well has been tested out, it is expected the Shell Co. will kill its well and deepen. The Texas Co. will probably do the same.

The Getty burning well is now putting 2500 barrels of oil into the tanks through connections made through the tunnel, pipes in the tunnel having tapped the nine-inch casing and being connected with compressors. It is estimated that about 500 barrels of oil and 1,000,000 cubic feet of gas is still coming out of the top of the well and burning.

Pacific Eastern is testing its No. 1 well in the Fruitvale field, near Bakersfield, on the pump and it is making heads of oil. Same company's B5 has settled to 1400 barrels of 22 gravity oil, flowing, and is preparing to test still another hole. Pacific Eastern controls 3000 acres in this new field, although there is some offset acreage that probably will be productive.

Texas, New Mexico, Louisiana

A DEEP test of the Wentz Oil Corp., in Sec. 55, Block 7, Southern Pacific Survey, southwestern Stephens county, found a significant pay horizon in the Ellenburger lime formation at 4040-4043 feet, swabbing 40 barrels daily of 45 A. P. I. gravity oil. The only commercial well previously completed in the Ellenburger in central north Texas was a test of the Panhandle Refining Co., in Young county, about a year ago.

The significance of Ellenburger production is that it proves the Ordovician geological section in central and north Texas at places structurally favorable in the subsurface. The Ordovician section includes the Wilcox series pay horizons of Oklahoma.

Wentz Oil Corp., owns a 4000-acre block around its Elliott discovery, in Stephens county. The acreage is not solidly held, however, J. Elmer Thomas and J. S. Cosden owning separate offsets to the Elliott.

A gas well of the Prairie Oil & Gas Co., in southern Winkler county, has proved the structural position of the O'Brien ranch extension of developed territory, as previously indicated by the Sid Richardson et al. well in Sec. 50, Block F. Prairie's No. 1 Sealy, in Sec. 95, Block A, five or six miles southeast of the Richardson well, made 5,000,000 cubic feet of gas daily at 2575 feet, above the lime horizon of the region. Subsurface correlations show the Prairie gasser to be on the east flank of the structure and show that the Gulf Production Co.'s 23,000 acre O'Brien (Stockton Cattle Co.) block blankets the best part of a future field to be mainly controlled by Gulf.

Wildcat tests in southeastern Lea county, New Mexico, generally maintained their recently prevailing status as the drills progressed. Increasing quantities of gas were reported from the Marland-Lynn and Gypsy-state tests, which were good respectively for 10,000,000 and 30,000,000 cubic feet daily.

Operations in Louisiana lacked anything more than local significance, either in the Shreveport territory or the Gulf Coastal area.

Wyoming, Montana

THE Ohio Oil Co. has been delayed in completing its discovery well on the Shoshone structure in northern Wyoming, by casing trouble. There is 2000 feet of oil standing in the hole. The discovery well on the Frannie structure, northern Wyoming, is making 350 barrels per day on the pump. Rosenburg interests have location made for an offset.

Cody Petroleum Co. has ordered machinery for an absorption plant to operate on Oregon Basin field gas. It will have a capacity of 20,000,000 cubic feet per day. A new committee has been named to attempt a proration of production and pipe line runs from the field, with M. J. Foley chairman and supervisor.

Pipe line runs for the last part of last week from the Pondera field in northern Montana were 7500 barrels per day.

Index to Coming Meetings

California Natural Gasoline Association, Biltmore Hotel, Los Angeles, Nov. 13, 14.

Rocky Mountain Oil & Gas Association, Casper, Wyo., Nov. 14, 15.

Rocky Mountain chapter, A. P. I. division of development and production engineering, Casper, Wyo., Nov. 14, 15.

Independent Oil Men of America, Stevens Hotel, Chicago, Nov. 19, 20 and 21.

Rocky Mountain Oil & Gas Association, Montana chapter, Great Falls, Mont., Nov. 23, 24.

American Petroleum Institute, Stevens Hotel, Chicago, Dec. 4, 5, 6.

Nebraska Independent Oil Men's Association, Municipal Auditorium, Hastings, Neb., Dec. 4, 5, 6.

Wisconsin Petroleum Association, Schroeder Hotel, Milwaukee, Dec. 12.

Wisconsin Petroleum Association: Park Hotel, Madison, Jan. 16 and Feb. 13; Schroeder Hotel, Milwaukee, March 13 and Apr. 10; Beaumont Hotel, Green Bay, May 15.

Ohio Petroleum Marketers Association, Neil House, Columbus, O., Feb. 13, 14, 15.

American Association of Petroleum Geologists, Fort Worth, March 21, 22, 23.

Pennsylvania Jobbers Elect State Officers

HARRISBURG, Pa., Oct. 29

A MORE equitable gasoline tax law, the value and results of organization, and general merchandising problems were subjects for discussion at the first annual meeting of the Pennsylvania Independent Oil Men's Association at the Penn Harris Hotel, Harrisburg, Oct. 15, 16 and 17.

Officers were elected for the coming year. They are: W. M. Berlin, Economy Fuel Co., Greensburg, Pa., president; James Meehan, Universal Oil Co., Johnstown, first vice president; Max Levinson, Peerless Oil Co., Philadelphia, second vice president; R. C. Paul, Harrisburg Oil & Supply Co., Harrisburg, treasurer. R. A. Overholser remains executive secretary.

Frank W. Lovejoy, general manager of Vacuum Oil Co., New York, spoke on "An Intimate Talk About the Marketing of Oil and Gas." Mr. Lovejoy said what the oil jobber should do is to buy for the public rather than sell to it.

"The Economics of Merchandising" was the subject chosen by Aaron Sapiro, attorney of New York City, to inspire jobbers to cooperation through thorough and complete organized effort. He said that in the motion picture industry, for instance, what is known as the Big Three, who control only 18 per cent of the motion pictures, dominate the entire industry because they are so well organized. He suggested a grouping of members of the organization according to their needs, and collective buying for each group.

The rapid growth of industrial and domestic oil heating was discussed by E. E. Newsom, assistant director, Oil Heating Institute, New York.

Jack Marsh, Vahey Oil Co., Youngstown, O. and president of the Ohio Petroleum Marketers Association, scored Pennsylvania jobbers for their failure to have a strong state association up to this time, and told of the program of the Ohio association.

How jobbers could cooperate in controlling fire hazards was told by William F. Traeger, superintendent of investigations, State Bureau of Fire Protection, who claimed there were over 2000 violations of the state installation code in September.

The importance and value to the jobber and marketer of oil of knowing his operating costs were covered in "Why You Should Know Your Costs" by V. L. Elliott, controller, Atlantic Refining Co., Philadelphia.

Other speakers were Dr. Hugh P. Baker, director of trade associations, Chamber of Commerce of the United States; Gen. Edward Martin, auditor general of Pennsylvania; R. C. Paul, Harrisburg Oil & Supply Co., and formerly president of the Pennsylvania association; R. L. Swats, executive director, LaSalle Extension University; S. W. Lewis, state secretary of Pennsylvania, Pennsylvania; and Mr. Hopkins, who spoke on the need of training service station attendants.

Twenty-seven equipment companies had exhibits in the ballroom of the Penn Harris hotel.

Oil Company Radio Programs

For Week Starting Nov. 4

NATIONAL PETROLEUM NEWS *offers you in these two columns the time and stations through which many oil companies over the country offer their radio entertainment programs. If other oil companies will furnish the announcements of their programs in advance they will be included in this program.*

Following are the oil industry radio programs for the week of Nov. 4. All time is central standard, and p.m., unless indicated.

Sunday, Nov. 4

8:00-9:00 a.m.—KFDM, Magnolia Petroleum Co., religious service.

11:00-12:00 a.m.—KFDM, Magnolia Petroleum Co., religious service.

12:00-1:00—WHK, Pocahontas Oil Co., "Blue Flash Indians" (orchestra).

12:00-1:00—KFDM, KPRC, Magnolia Petroleum Co., Star quartet.

6:30-7:00—KFON, Hancock Oil Co., orchestra.

11:00-2:00 a.m.—KFON, Hancock Oil Co., "All Star Nite."

Monday, Nov. 5

12:35-1:00—KFDM, Magnolia Petroleum Co., organ recital.

5:30-6:30—WHK, Pocahontas Oil Co., "Blue Flash Indians" (orchestra).

6:30-9:00—KFON, Hancock Oil Co., orchestra.

8:00-9:00—KFYM, WRR, Magnolia Petroleum Co., Magnolia band and orchestra, Dallas.

Tuesday, Nov. 6

12:30-1:00—KFDM, WFAA, Magnolia Petroleum Co., Magnolia Refinery Band.

6:30-8:45—KFON, Hancock Oil Co., orchestra.

6:30-7:00—WEAF, WEEI, WTIC, WJAR, WTAG, WCSH, WGY, WGR, Standard Oil Co. of New York, Soconyland Sketch, over National Broadcasting Co. chain.

8:00-10:00—KFDM, Magnolia Petroleum Co., Magnolia orchestra.

Wednesday, Nov. 7

12:30-1:00—KFDM, Magnolia Petroleum Co., studio program.

6:30-9:00—KFON, Hancock Oil Co., orchestra.

11:00-11:30—KFI, KHQ, KOMO, KGW, KGO, KPO, Associated Oil Co., Jack and Ethyl, "The Motor Mates," over Pacific coast National Broadcasting Co. chain.

Thursday, Nov. 8

12:35-1:00—KFDM, Magnolia Petroleum Co., organ recital.

5:30-6:30—WHK, Pocahontas Oil Co., "Blue Flash Indians," (orchestra).

1:00-1:30—KFI, KGO, KGW, KOMO, KHQ, KPO, Standard Oil Co. of California, Standard school broadcast, over Pacific coast National Broadcasting Co. chain.

6:30-9:00—KFON, Hancock Oil Co., orchestra.

9:30-10:30—KFI, KGO, KGW, KOMO, KHQ, KPO, Standard Oil Co. of California, Standard Symphony Hour, over Pacific coast National Broadcasting Co. chain.

Friday, Nov. 9

12:30-1:00—KFDM, WFAA, Magnolia Petroleum Co., Magnolia band.

6:00-9:00—KFON, Hancock Oil Co., orchestra.

7:00-8:00—WEAF, WTAM, WEEI, WLIT, WRC, WGR, WCAE, WWJ, WSAI, KYW, WCCO, KSD, WOC, WOW, KVOO, WDAF, WFAA, KOA, Cities Service Oil Co., Cities Service Hour, over National Broadcasting Co. chain.

8:00-10:00—KFDM, WRR, Magnolia Petroleum Co., Magnolia Refinery band, Beaumont.

9:00-10:00—KFDM, Magnolia Petroleum Co., Magnolia Refinery band.

10:00-10:30—KFI, KTO, KPO, KHQ, KTW, KOMO, KFAI, General Petroleum Corp., General Independents, over Pacific coast National Broadcasting Co. chain.

Saturday, Nov. 10

12:30-1:00—KFDM, KPRC, Magnolia Petroleum Co., miscellaneous entertainment.

7:00-9:00—KFDM, KPRC, Magnolia Petroleum Co., miscellaneous entertainment.

8:00-9:00—KFON, Hancock Oil Co., orchestra.

9:00-10:00—KFDM, WFAA, Magnolia Petroleum Co., barn dance.

Along the Air Lanes

The "Skyway," first plane of the Butler Aircraft Corp., marks the entry of this subsidiary of the Butler Mfg. Co., into the commercial airplane manufacturing industry.

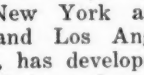
This plane was built in its entirety in the Butler factory here. It was necessary to add to the company's own equipment only one special machine costing $350 and employ three skilled airplane mechanics to build this first plane, according to E. E. Norquist, president of the Butler Mfg. Co.

A. M. Dochart, vice-president, Rio Grande Oil Co., El Paso, is a member of a committee named to present data to the postoffice department at Washington, looking toward establishment of an all-southern transcontinental air mail route from New York to the Pacific coast. The proposed route would include Memphis, Dallas and El Paso, with San Diego as the western terminus.

Bulk station roofs in 980 towns in 10 states have been marked with the name of the town by the Standard Oil Co. of Indiana, Chicago, to guide aviators. The company has 900 more such signs scheduled to be placed.

Another company that is covering its territory well with aviation guides is the Standard Oil Co. of California, which has marked nearly 500 of its stations in seven states.

R. C. Holmes, president of the Texas Co. and a party of friends flew from Newark Airport to Curtiss Field, L. I. recently in the company's Ford Tri-motor monoplane, known as Texaco No. 1.



The Fairchild Co., Inc., with home offices at New York and branches at Dallas and Los Angeles among other places, has developed a camera for aerial photography which makes four simultaneous exposures giving one vertical and three oblique pictures. A transformer is used for rectifying obliques into verticals on a precise scale. With this equipment it is possible to photograph 11,000 acres of ground at a time. The camera, which weighs about 100 pounds, is of a type practical for geologists making aerial surveys, engineers, foresters and others.

Texaco No. 1, The Texas Co.'s trimotored all metal Ford monoplane participated in the ceremonies inaugurating the first International Air Mail Service recently to the extent of carrying officials of several cities in northern New York state from Albany to Montreal.

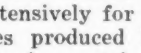
Twelve passengers, including Leon Trepenier, leader of the municipal counsel of Montreal, besides the pilot and a co-pilot, made the flight from Albany to Montreal. Mayor Houde of Montreal greeted the plane on its arrival. Eight passengers were carried on the return trip. The plane made Newark airport, a jump 440 miles, in five and one-half hours with a 40-minute stop in Albany.

Texaco No. 1 went to Wilmington, Del., Oct. 6 to participate in the opening of a new airport there.

Aviators flying across west Texas have found a new use for the crude oil transporting system of the Pasotex Pipeline Co., subsidiary of Standard of California, between Winkler county and El Paso, a distance of 195 miles. The telephone line operated in conjunction with it stands out clearly from the air, offering a direction guide.

The Phillips Petroleum Co. has purchased a second airplane for business purposes. It is a three-place Travel Air biplane, Whirlwind powered. The ship was delivered to the company at the Travel Air factory at Wichita, Kans., and flown to Bartlesville by Billy Parker, Phillips chief pilot.

Phillips bought its first plane more than a year and a half ago. It has been used extensively for testing aviation gasolines produced by the company, for business trips and sales promotion work.

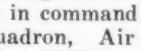


Planes of the National Air Transport Inc., have flown 3,306,207 miles without the slightest injury to a passenger or the loss of a single ounce of mail or express since it began operations, May 12, 1926, according to an announcement made this week by L. D. Seymour, an official of the company. During September the N.A.T. ships flew 175,000 miles without a single forced landing on account of mechanical causes.

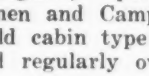
Organization at New York of the Aviation Corp. of the Americas contemplates the linking of North, Central and South America by air routes. All outstanding stock of the Pan American Airways, Inc., will be taken over in addition to the company absorbing the West Indian Air Express, operating between Santiago, Cuba, and Port Au Prince, Haïti. Routes totaling 4023 miles in 12 countries will be operated. Cornelius Vanderbilt Whitney of New York heads the new international corporation.

George B. Davies, salesmanager for the Louisiana Oil Refining Corp., Shreveport, was a business visitor in Tulsa Oct. 19 and called on J. F. Nagle, salesmanager for the Spartan Aircraft Co. Mr. Nagle had one of the company's training ships warmed up and took Mr. Davies for his first airplane ride. They circled over Tulsa several times and then over the grounds of the International Petroleum Exposition.

Rufus J. Pilcher, of Los Angeles, who has served Richfield Oil Co. for the past three years as chief scout and head of the statistical department, has been promoted to position of assistant to Dudley M. Steele, head of the aviation section of the sales department. Mr. Pilcher served as a pilot during the World war and at present is in command of the 476th Pursuit Squadron, Air Corps Reserves, Clover Field.



Newly inaugurated air service between Vera Cruz, Mexico, and Merida, Yucatan, will facilitate travel of oil men to the Isthmus of Tehauntepec region. Stops will be made at Minititlan, where Mexican Eagle Oil Co., Ltd., (El Aguila) operates a refinery; Carmen and Campeche. Two new Fairchild cabin type monoplanes will be used regularly over the 500 mile route.



Leo Snyder, general sales manager of the Champlin Refining Co., Enid, Okla., took his first solo flight in July and is now spending considerable time in the air. He completed a course of instruction given at the Enid flying field.

The Editors' Viewpoint

National Petroleum News

Why We Should Elect Hoover

By Paul Truesdell

OUR industry faces one great problem and that is, how to conduct the business to make it pay an adequate profit. In order to solve this problem the industry must have a free hand within the limits of the public interest to rationalize production of crude so that floods of oil do not depress the price below the cost of production plus a fair profit.

The industry also, if it is to give the American public the service it desires and deserves and at the same time pay a fair return to its stockholders, must be free from the disturbance, the lack of confidence, the uncertainty caused by unwarranted and silly "investigations" of its producing and marketing activities.

It must also be free and be encouraged by the attitude of the government to develop foreign markets and must be backed up by Washington to the extent of safeguarding its investments and its personnel in foreign lands, both in the marketing and producing branches.

Hoover better than any man in America, probably, understands these facts. He is one of the world's leading engineers. He thinks in terms of engineering and of big business. He has announced himself in strong terms as opposed to government in business. He has announced his purpose to foster and develop foreign trade; as secretary of commerce he has done much in the last few years actually to develop foreign trade.

He is not a politician, he is an engineer and an administrator.

He knows that it is against the public interest for any business to be conducted at a loss or at too small a margin of profit.

As an engineer he can understand the need for the producers to act together to prevent the development of new flush pools when the oil is not needed; as a business man he is for such regulation in the interest of common sense and prosperity for all. At the same time he would discourage the imposition of unjustified burdens on the industry under the guise of "conservation."

He would be able largely to discourage political sprees of "investigating" the oil industry by members of congress and he would do it. He would discourage efforts of politicians to infringe on the rights of the industry in any direction.

His attitude would be immensely helpful to such concerted efforts to better the prosperity of the industry as the joint marketing company to operate in foreign lands that is now being earnestly studied by leaders in the business.

It is likely that the prosperity of the American oil industry in the future may depend largely on safety in the development of foreign producing fields. This is likely to call for proper diplomatic action by our government. Hoover knows how to deal with foreign nations. He enjoys the personal acquaintance of most of the leaders in all countries of the world. He has the world viewpoint.

He is a scientific business executive whose guiding star is the truth and not desire to further his political fortunes by trick plays.

Engineering Achievement

THE International Petroleum Exposition at Tulsa last week was a physical demonstration—and a very impressive one—of the part engineering has come to play in the oil producing industry particularly.

One striking feature of the display of oil field machinery and equipment was the increase in its weight and size, to meet operating conditions coming from drilling and producing wells from greater depths than ever before. We speak now of weight in thousands of pounds where a few years ago it was hundreds of pounds. Ease of handling has not been sacrificed along with this greatly increased weight, however. Engineering has seen to that and has also provided for greater life of the equipment.

Who would have thought, a few years ago, of Timken roller bearings for a jack post, such as were displayed at the Tulsa Exposition? And that is not the only place that Timken bearings are used in oil field equipment now.

Even more impressive than the greatly increased size and weight of the present day oil field machinery are the safety and automatic features of a great deal of this equipment now, features that ease the burden on manpower in the oil fields. Provisions are made by the manufacturer to protect even the careless worker around the machinery he sells the oil company, to protect him from falling, from catching his clothing in gears, being drawn into a belt and so on.

Ditch digging machines replace many hours of arduous manpower now, as do winches and lifts and tractors, pipe laying and pipe wrapping machines and so on. Safety appliances protect the worker who must expose himself to dangerous conditions.

For one who can compare this present great exhibit of $10,000,000 worth of oil field machinery with what was offered the oil producing industry only five years ago, the part that engineering has played in giving the industry better tools to work with is truly remarkable. That engineering service has not stopped with the oil producing industry either. Equally impressive demonstrations could show the increased efficiency under which the refining industry works today, and under which the distributor of oil products serves the public today.—V.B.G.

Those New York Truck Tanks

IF NEW YORK CITY politicians get away with their present efforts to force oil companies to buy at an excessive price, a specially designed gasoline truck tank sold by one company only, the oil industry may well expect to have to meet the same hold-up in other large cities.

Government in cities, for the most part, seems to be

just about the same as in the past except that what is "pulled" today is not quite so rough, and is generally cloaked with some seemingly respectable idea. In New York City, for instance, in connection with these tank trucks, it is pointed out quite truly that New York has a special fire problem, that greater precautions should be taken there than anywhere else, and that the safest possible tank should be used for gasoline hauling. To all of this the oil companies are willing to agree, providing the tank is within reason.

But when it just so happens that only one tank sales company can get its truck tank approved or even tested by the city authorities, that it charges some $1,500 more than any other company will make those tanks for, and finally that the head of the tank sales company is the leading political backer of the Democratic leader of the state, who happens to be running for president, then it all takes on quite another color.

The oil industry, and others as well, has been "worked" before on the basis of this protection idea but if New York politicians are successful in this barefaced hold-up the industry can well expect the friends of the same crew to try the same "racket" in other cities.

Fighting an organized political machine in a large community is a ticklish business because there are so many places where the politicians can give a company or an industry trouble and do it all under the cloak of public service. Public officials are none too intelligent nor scrupulous and they generally have good luck getting their scare stories into papers, so when you set out to fight them, you never can quite catch up with them nor their lies.

The oil industry should concern itself with this truck tank situation in New York and the best way to do it is for the American Petroleum Institute to have a special committee investigate and report the facts at the winter meeting of the Institute for full discussion. Then notice will have been served on the political grafters everywhere that they attack the oil industry at their peril—W. C. P.

Letters to the Editor

Editor, NATIONAL PETROLEUM NEWS,
Sir:

I read with great interest the paper entitled "The Application of Gas and Gasoline Analysis to Plant Control" which appeared in the issue No. 36 of your revue, and would like to know how does the author explain why in the analysis of the case A, the dry gas contains less ethane (5.3 per cent) than the wet one (6.1 per cent), and also the differences between the amounts of methane, ethane, propane, etc., between the wet gas on one side and the sum of dry gas plus production plus vapor from stabilizer on the other, in case B (see chart of analysis plant B, for instance, methane in wet gas 1592 M. cubic feet and 1504 M. cubic feet in the other).

I beg kindly the author to give me explanation of the above questions and also to permit me to translate the paper in Roumanian.

(Signed) M. Frenc,
Chief Engineer of charcoal and stabilizer plant,
Soc. Astra Romana, Moreni (Prahova), Roumania.

Editor's Note—The article referred to in this letter was written by J. C. Burks and was published on page 79 of the Sept. 5 issue of NATIONAL PETROLEUM NEWS. *We should be glad to publish any reply Mr. Burks cares to make to the inquiries of the Roumanian engineer.*

* * *

Editor, NATIONAL PETROLEUM NEWS,
Sir:

I was interested in your article regarding inns on page 76 of your issue of Oct. 10; especially the last sentence, "It is said that a veteran of oil camp prosperity near Muskegon, Mich., has set up a stand called Spud Inn."

What was probably the original Spud Inn was erected on the very top of the Santa Fe Springs dome in the spring of 1922, that is, in the early development of the Springs. It was open for business until Sept. 16 of this year when it was shut down on account of the blow-out at Getty's Nordstrom 17, only 300 feet distant.

This fire hole is written up on page 42 of the issue mentioned. On Sept. 18, as part of the program to get all inflammable material away from the vicinity of the well, the Spud Inn was razed. A sand-line was run over the middle of the building forming a running loop. The noose was pulled tight by a caterpillar, cutting the building in two and then another cat pulled the structure down with a loop running around it parallel to the ground.

The cats were then driven over the pile to mash up the boards which were thrown into trucks and hauled away. Thus one of the oldest landmarks in the field passed into history.

In the recent flurries of writing about the Springs, it seems to me, the local newspapers have passed up a great deal of interesting copy. The Spud Inn and the little stone church, a block away, which sits unused and almost forgotten in a forest of derricks and a swamp of sump-holes, were the two most romantic landmarks in the area.

The Spud Inn was so close to drilling wells in the early days that the jar and rumble of the pumps and rotaries made the dishes jiggle on the counters. In the present campaign a well's location had to be changed slightly to keep from ramming the engine house and casing racks through the Spud Inn's kitchen.

No doubt many a romance between biscuit-shooter and rotary-bully was begun as she served up his ham and eggs over the oil cloth covered counters of this ramshackle eating house.

(Signed) R. O. Swayze,
Petroleum Engineer,
General Petroleum Corp. of Calif.

* * *

Editor, NATIONAL PETROLEUM NEWS,
Sir:

I have noted with interest the Standard Oil Co. Q.D.A. Arrangement to become effective Oct. 1 in the Standard Oil Co. of Indiana's territory. Very few real gasoline merchants are going to object to this new price structure. Even the large retail dealers welcome something or another that would prevent the little 500-gallon a month man across the street from disturbing the market.

These are the fellows who are going to raise the howl; the small dealers who use gasoline as a leader for either a bootlegging trade or a barbecue pit, hot dog stand or other similar business.

The company of which I am president and general manager operates a chain of service stations over about 100 square miles with three wholesale plants. For the sake of profit and remaining in business, we are compelled to maintain the posted tank wagon and also service station price prevailing in this territory.

Dealers handling gasoline from the major companies invariably endeavor to get just across the street or across

the road from our place of business and cut the price 1 or 2 cents per gallon.

On taking this up with the major companies in order to have them correct this condition with their dealers, they invariably tell us that they cannot control the retail price. The real gasoline merchant would not be disturbed with these price cutters if it was not for the fact that though he may only buy 500 gallons or even less per month, he is buying it at the same price or receiving the same margin per gallon as the merchant who sells 5000 or 10,000 gallons per month.

Another unfair condition existing is that one of the major oil companies' trucks will go through some man's plantation for two miles and bail him out 50 gallons in a drum at the same price that he sells to the service station up on the road that is handling 5000 or 10,000 gallons per month. He not only deprives the service station man of business, who is paying a license to do business etc., but the oil companies are actually losing money when they send a tank truck probably two miles out of the way, losing two or three hours in order to make a delivery of 50 gallons.

We recently had this class of business in this territory placed strictly on tank wagon prices but the tank truck drivers soon made dealers out of all the farmers in the country and were giving them the full 4 cents off, that is, tank wagon price less 2 cents per gallon.

The new Q.D.A. would make it impossible for the tank truck driver to make a dealer out of a farmer and the farmer would have to pay in accordance with the service he received.

This would also apply to commercial consumers who have their own tanks and buy from 100 to 500 gallons per month. It did not take long for the truck drivers to make dealers out of all these fellows too.

It is readily seen that if it was up to the dealer to gather up his own tickets for credit the practice referred to above would be entirely discontinued or so nearly so as to be negligible on the part of the major oil companies' tank truck drivers. The sooner the Q.D.A. spreads to all parts of the United States, the sooner the oil companies will control their own business instead of it being in the hands of a lot of "piker" dealers who dictate the policies of the companies at this time.

I trust you will keep this matter before the oil jobbers throughout the United States and that you will receive enough encouragement to make it worthwhile for the major companies to see their way clear to extend that arrangement to territories now operating under other conditions.

Yours very truly,

(Signed) H. H. Gardner

Woco Pep Co. of Montgomery, Ala.

INDEX TO ARTICLES

Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

Donald B. Brooks 801.

"The Influence of Fuel Characteristics on Engine Acceleration"

S. A. E. Journal, September, 1928, pp. 235-248.

"Selection of a method of development of apparatus enabling precise and detailed measurement of engine acceleration is discussed in the first portion of this paper the latter portion of which is concerned with the experimental results thereby obtained.

"Previous work on the influence of engine conditions on acceleration is generally substantiated. A method is described for approximately deriving the effective air-fuel ratio delivered to the cylinders during acceleration. Practical applications are suggested and limitations are discussed.

"The effect of fuel volatility on engine acceleration was studied using six fuels; aviation gasoline, commercial gasoline, a blend composed of equal parts of the two, and three especially prepared fuels, all of which have equal 20 and 90 per cent points but differ widely at the 50 per cent point. It is shown that the relative values of these fuels for acceleration depend upon the amount of vaporization in the manifold."

J. C. Chatfield 914.12

"Four New Gasoline Plants in Panhandle Output Nears 300,000 Gallons Daily"

National Petroleum News, June 13, 1928, p. 92.

Although crude oil production in the Panhandle of Texas is decreasing the production of Natural Gasoline is increasing steadily. A list of plants in the field is given with current production of each and the construction of four new plants is announced.

National Petroleum News 747.

"How Important Petroleum Tests Are Applied and What They Show"

National Petroleum News, July 25, 1928, pp. 29-30.

Third installment of booklet prepared by Committee D-2 of the American Society for Testing Materials to make clear to the minds of members of the oil industry just what the generally used tests for petroleum products are intended to show and how they are made.

Hill, H. B., and Sutton, C. E., 111.42

(Cross-Index under 535.)

"Production and Development Problems in the Powell Oil Field, Navarro Co., Texas"

U. S. Bureau of Mines Bulletin 284. 123 pages, 35 illustrations. 1928. Price 45 cents from U. S. Superintendent of Documents, Washington, D. C.

The Powell Field has been characterized by rapidity of development, close spacing of wells, high initial yields, high peak production for the field, sharp decline and early and rapid encroachment of water. Early in 1924, U. S. Bureau of Mines engineers began a detailed survey of the field and gathering of data extended over a period of two and a half years, particular attention being given to methods of plugging back wells to prevent bottom and edge-water incursion.

This report presents a summary of the data gathered with considerable detail on the water problems and their solution. The report describes the geology of the field, structural conditions and conditions influencing development practice. Production practices and equipment are briefly described. It is demonstrated that engineering studies and proper plugging of wells under engineering advice, have in many areas resulted in important increases in recovery. The report is illustrated by many excellent maps, geologic sections developed from well logs, production graphs, photographic illustrations of lease equipment, and sketches illustrating cementing methods.

M. Garcia 749.

"Heat Transfer in Oils Flowing Through Pipes"

Industrial and Engineering Chemistry, September, 1928, pp. 889-891.

The logarithmic mean temperature difference equation is based on assumptions which are wholly unjustified when dealing with oils and may give misleading results in heat transfer calculations. Differential equations have been derived, taking into account the change in physical properties of the liquid with temperature and the results obtained by integration of these equations differ considerably from those given by the logarithmic mean formula and show a different law of temperature distribution along the exchanger.

Graphical methods are given for the calculation of mean liquid temperatures and mean temperature differences to be used in the correlation of experimental data or the design of exchangers for heavy viscous oils involving large temperature ranges.

Henry W. Ralph 749.

"Accounting Methods for Refineries"

National Petroleum News, Aug. 29, 1928, pp. 65-69.

Fourth installment in a series. Discusses control of labor through the card system. Adaptation of card systems to needs of large and small plants are taken up and the various kinds of cards described, application blank, new employe record of employment card, payroll change card or transfer card, discontinuance of employment card and others. The application blank is used only in plants large enough to have a personnel department. Elements usually found on new employe record of employment card are date, name of employe, employe number, address, telephone number, marital status, trade or occupation.

Payroll change card usually carries, besides name and number of employe, present salary, new salary, present position, new position, present location, new location.

Barton, Donald C. 368.

"The Seismic Method of Mapping Geological Structure"

Mining and Metallurgy, Sept., 1928, p. 401.

This article is an excerpt from a paper presented at the Boston meeting of the American Institute of Mining & Metallurgical Engineers, August, 1928. It reviews the history, briefly, of seismic methods and sketches their application to the oil industry. The author says the cost of operating a seismic troop in the Gulf Coast salt dome area is commonly reported to be between $15,000 and $20,000 per month. The area covered by reconoissance shooting by one troop in a month is from 150,000 to 300,000 acres. The cost of detailing a salt dome is considerably higher than the reconnoissance work.

F. E. Frey and David F. Smith 210.

"Thermal Decomposition of Ethane, Ethylene, Propane and Propylene"

Industrial and Engineering Chemistry, September, 1928, pp. 948-951.

"The purpose of this work was to determine the types of reaction, the nature of the products and their relative predominance in the thermal decomposition of the simpler hydrocarbons. It was hoped that information of this nature would be of value in commercial oil cracking operations and in many processes concerned with petroleum and natural gas. This paper is an account of some experiments involving ethane, ethylene, propane and propylene. The effect of certain catalysts was investigated but most of the reactions described took place in silica containers which exerted little catalytic effect and involved only gaseous products."

Marsh, H. N., 501.1

Cross-Index under 591.13

"Method for Appraising Results of Production Control of Oil Wells"

A paper read before the semi-annual meeting of the American Petroleum Institute Division of Development and Production Engineering, Colorado Springs, June 15, 1928. Printed in NATIONAL PETROLEUM NEWS, June 13, 1928, pp. 49-59; Petroleum World, July, 1928, p. 68; Oil Age, July, 1928, p. 34; Oil Weekly, June 15, 1928, p. 29; Oil Field Engineering, July, 1928, pp. 26-31; and Oil & Gas Journal, June 14, 1928, p. 83.

A new type of production decline curve is here proposed, to which the name "Rate-Cumulative Decline Curve" is given, in the construction of which the rate of production of a well is plotted against its cumulative production on natural co-ordinates (rate of production as abscissae and cumulative production as ordinates). Such a graph is in nearly all cases, a straight line which can be extrapolated to indicate the ultimate production at its intersection with the horizontal axis of co-ordinates. The slope of the graph is found to be quite sensitive to slight changes in the conditions influencing production and it is suggested that graphs of this character might be effectively used in studying the influence of various methods of well control on ultimate recovery—particularly such influences as are due to changes in back-pressure, control of gas-oil ratios, spacing and interference of wells. Many interesting graphs are presented, illustrating various applications of the rate-cumulative type of decline curve in displaying the effects of change in operating conditions at producing wells. The author concludes as a result of his investigations in the application of the proposed type of graph, that the gas-oil ratio is perhaps less indicative of efficiency in recovery than has been generally supposed, and that other factors, such as well spacing and interference are of equal if not greater importance.

Sutton, Chase E., 269.2

Cross-Index under 343.4

"The Acetylene Tetrachloride Method of Porosity Determination in Engineering Field Studies"

U. S. Bureau of Mines Reports of Investigations No. 2876. 1928. Printed in Petroleum World (Los Angeles), Aug., 1928, pp. 74, 76 and 114; in Oil Field Engineering, September, 1928, pp. 44-48; and in Oil Age, August, 1928, pp. 40-41, 73-75.

The porosity of a sand or sandstone is a measure of its capacity for holding fluids, and porosity determinations are therefore essential in making estimates of oil content of sands, precentage recoveries, and in engineering studies of underground conditions in an oil field. This report describes a simple and reliable method of determining porosity of oil and gas reservoir rocks with reasonable accuracy. The method employed is one originally described by W. L. Russell in the Bulletin of the American Association of Petroleum Geologists, Vol. 10 (1926), pp. 931-938, involving the use of a glass specific gravity bottle and graduated burette of peculiar design in which the sample to be tested is placed, together with a definite quantity of acetylene tetrachloride. The volume of the grains composing the specimen can be determined by reference to the fluid level in the graduated burette. The weight of the specimen is also determined, and from this data, the percentage porosity may be computed.

Practical details of the procedure to be followed in making tests by this method are given, including the preparation of the sample and removal of hydrocarbons from it, method of determining volume of the aggregate and of the individual grains, technic in eliminating air from the specimen and from the apparatus, corrections to be applied to the observed data, and method of computing the results. The relative advantages and disadvantages of the method, in comparison with other methods, are also discussed. A sketch of the apparatus used in making porosity tests by this method, is given.

Trucks

and trailers—their operation and maintenance—how they lower oil transportation costs—15 articles in the past year's issues of NATIONAL PETROLEUM NEWS have been devoted exclusively to the subject of truck operation in the oil industry.

They are listed here for your file reference:

1928

Tank Trucks for town and country Oct. 17, p. 195

Truck tank monopoly in New York Oct. 10, p. 24

Truck trains transport gasoline cheaper Oct. 10, p. 68

Truck and water transportation exceed rail Sept. 26, p. 94

N. Y. truck tank prices caused by politics July 4, p. 23

Fast truck features power unloader July 4, p. 63

Trucks cut gasoline transportation costs June 27, p. 69

Truck hauling permitted in most states Apr. 18, p. 27

Truck shipping is new era for oil transportation Apr. 11, p. 28; Apr. 4, p. 25; Mar. 28, p. 28; Mar. 14, p. 27.

1927

Developing driver for cheaper transportation Dec. 14, p. 70

Truck trailers haul carload of gasoline Nov. 23, p. 26

Lowering transportation costs with trucks Oct. 26, p. 27

The above list of articles is for your convenience in locating them in your file.

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National Petroleum News

Main Office: 1213 West Third St.
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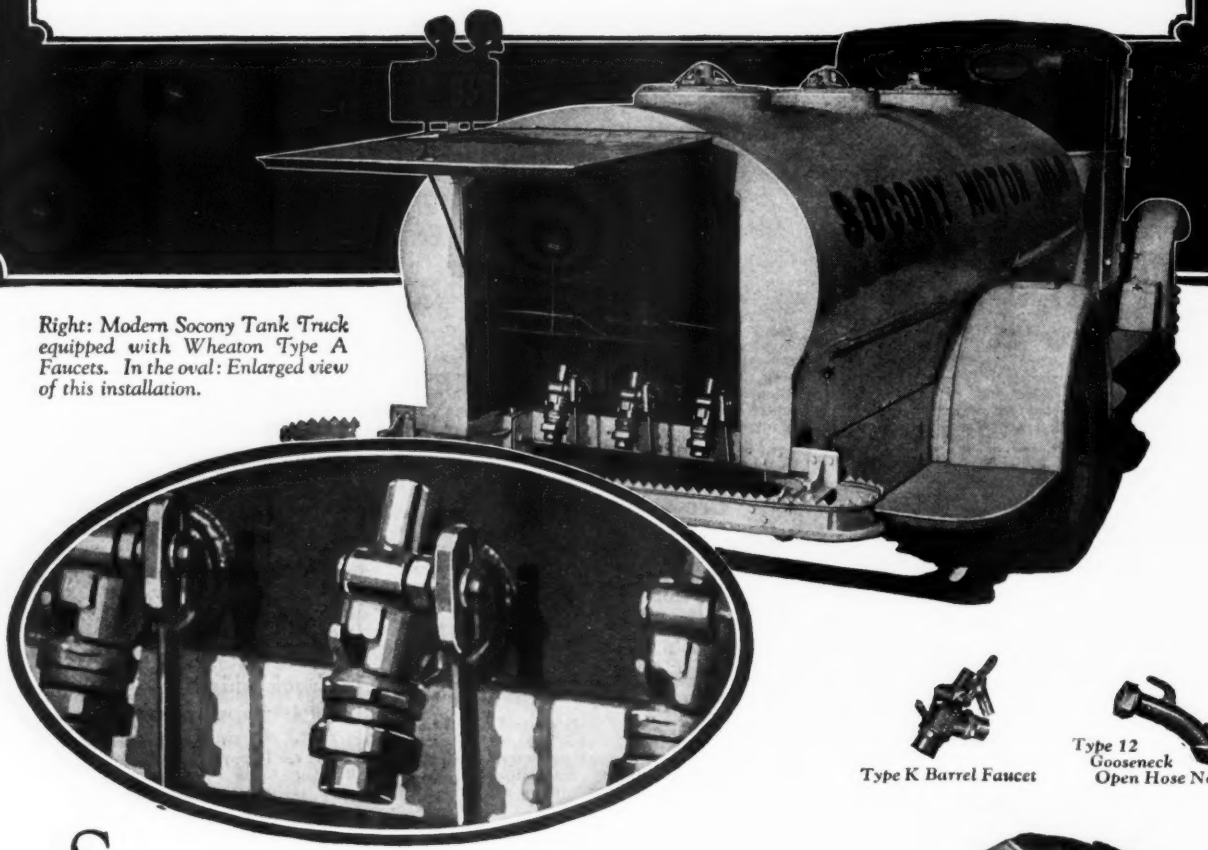
Wherever you see Socony Trucks —you'll find WHEATON Faucets



Right: Modern Socony Tank Truck equipped with Wheaton Type A Faucets. In the oval: Enlarged view of this installation.

Type K Barrel Faucet

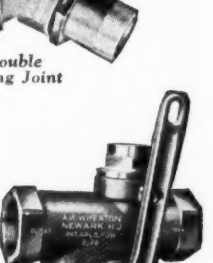
Type 12 Gooseneck Open Hose Nozzle

SOON the second decade will have passed since Standard Oil Company of New York gave their approval to the fine *design, material* and *craftsmanship* which so markedly distinguish Wheaton Products. It was with their characteristic thoroughness that the makers of Socony Products first tested Wheaton Faucets, and then registered their approval in terms of *orders*. But not only was Merit *recognized*—it was given *full rank:* Wheaton Faucets were made *standard equipment* with the Standard Oil Company of New York.

And what can be added to such a recommendation?

Double Swing Joint

Type 24 Tank Truck Faucet



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FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

Mission Pool Most Active in Oklahoma; 70 Wells To Be Started Nov. 15

By John Power
N. P. N. STAFF WRITER

TULSA, Oct. 27

WITH the barrier set to go up Nov. 15, the Mission pool, in Twp. 8-6, Seminole county, becomes the most active of the oil fields of Oklahoma. Although drilling in the area is limited to two wells per 40-acre tract until the first of the year, nearly 70 wells are getting ready for the start of the campaign.

Under the plan adopted by operators in the district, none of the wells which start Nov. 15 will be produced until Feb. 15. The remaining undrilled locations in the field may be drilled, starting Jan. 1, 1929, and completed and produced as the individual operators see fit.

Estimates vary on the possible peak production of the new field, as do all estimates on futures in the oil business. Figures ranging from 50,000 barrels per day to as high as 100,000 barrels daily are given as the guesses of local operators. Although it is conceded that the field will be of large proportions, it is not expected that it will have a peak sufficiently high to disturb the production situation as a whole.

The latest producer in the field is the Carter Oil Co. No. 1 Fuswa, which had an initial production of about 1400 barrels from the Wilcox sand at 4629-31. The well is in the NW NE NW of 18-8N-6E, one quarter mile south of the nearest producer. The area which is more or less proven by the nine producing wells in the field covers roughly 1000 acres.

Production to the north and west seems to be somewhat defined by dry holes, while the farthest east producer, the Twin State No. 1 Hayes, in the NW NE NE of 8-8-6, is an indifferent well, which has been showing considerable water with the oil.

The wells which have indicated that they are real producers have been shut in completely for some time, the Gypsy Oil Co. agreeing to this complete restriction at the request of the Minnehoma Oil Co. The Minnehoma's request, for complete shutting in, on which it based its agreement to further delay in drilling, was on the ground that even a limited production of any well dissipated the pressure on the sand, and that this pressure, the natural propelling agent in the oil, was the common property of all leaseholders. The producing horizon in the field is the upper Wilcox, the same as in the other pools of the original Seminole group, and not the true, or second Wilcox which made all the "whoopee" in the St. Louis pool.

As for the St. Louis pool, it has apparently seen its best days. In spite of the more regular application of the air/gas lift, and the addition of three more wells, the Wilcox production fell off during the week. On Oct. 26 the 35 Wilcox wells gaged 89,383 barrels as against 92,970 barrels from 32 wells for Oct. 19.

Such Wilcox completions as made producers were disappointingly small. The Magnolia Petroleum Co. carried off what honors there were.

The Magnolia's No. 1 Tull Fyke "B", in the NW NE SE of 20-7-5, had an initial production of about 1600 barrels from the Wilcox sand. This well is a direct south offset to the Mid-Continent No. 1, the farthest east Wilcox producer in the field. The latter well is making better than 2200 barrels daily on air.

The No. 1 Weems, of the Indian Territory Illuminating Oil Co., in the NW SW SW of 21-7-5, which was a hole full of water in the Wilcox from 4275-4303, was plugged back to the Simpson formation in which it made a light well. The same fate was accorded the Magnolia in its No. 1 Tull Fyke "D", which was a hole full of water in Wilcox at 4455-60.

It, too, has been plugged back to the Simpson, from which it is producing about 200 barrels. The other new wells which made Wilcox producers were along the southern edge of the producing area, and belonged to the Phillips Petroleum Co. and the Prairie Oil & Gas Co. respectively. The Phillips producer, its No. 3 Stahl, in the SW NW NE of 30-7-5, is making about 1500 barrels daily, while the Prairie No. 2 Wolfe, in the SE NW NW of 29-7-5, is good for about the same amount. A comparative table of production leases follows:

Company	Lease	No. of wells	Prod. Oct. 26	Prod. Oct. 19
Barnsdall	Stahl	1	1,170	1,030
Gypsy-Sinclair	Stahl	2	11,200	11,580
Phillips	Stahl	2	5,865	4,748
Sinclair	Nadash	1	1,060	1,170
Magnolia	Hembree	4	9,384	11,633
Magnolia	H. E. Youts	5	12,159	12,004
Magnolia	C. A. Youts	1	280	1,357
Magnolia	T. Fyke "A"	1	350	673
Magnolia	T. Fyke "B"	1	1,080	.....
Slick	Hembree	4	16,695	19,225
Slick	Youts	2	3,897	235
Mid-Continent	Guinn	1	2,235	2,835
Independent	Youts	8	21,963	25,615
Prairie	Wolfe	2	2,045	955
Totals		35	89,383	92,970

The other areas in the Seminole district did little to attract attention. T. B. Slick, whose No. 1 Wood in the NE SW of 26-7-6, was a dry hole in the Wilcox sand, plugged back up the hole to the Cromwell. The 8-inch casing was ripped and the Cromwell explored at 3325. This formation responded rather nobly by producing a well capable of about 75 barrels an hour. This sand, however, does not extend over very large areas in the Seminole country, so that the find is not regarded as important from the viewpoint of a possible new and important field.

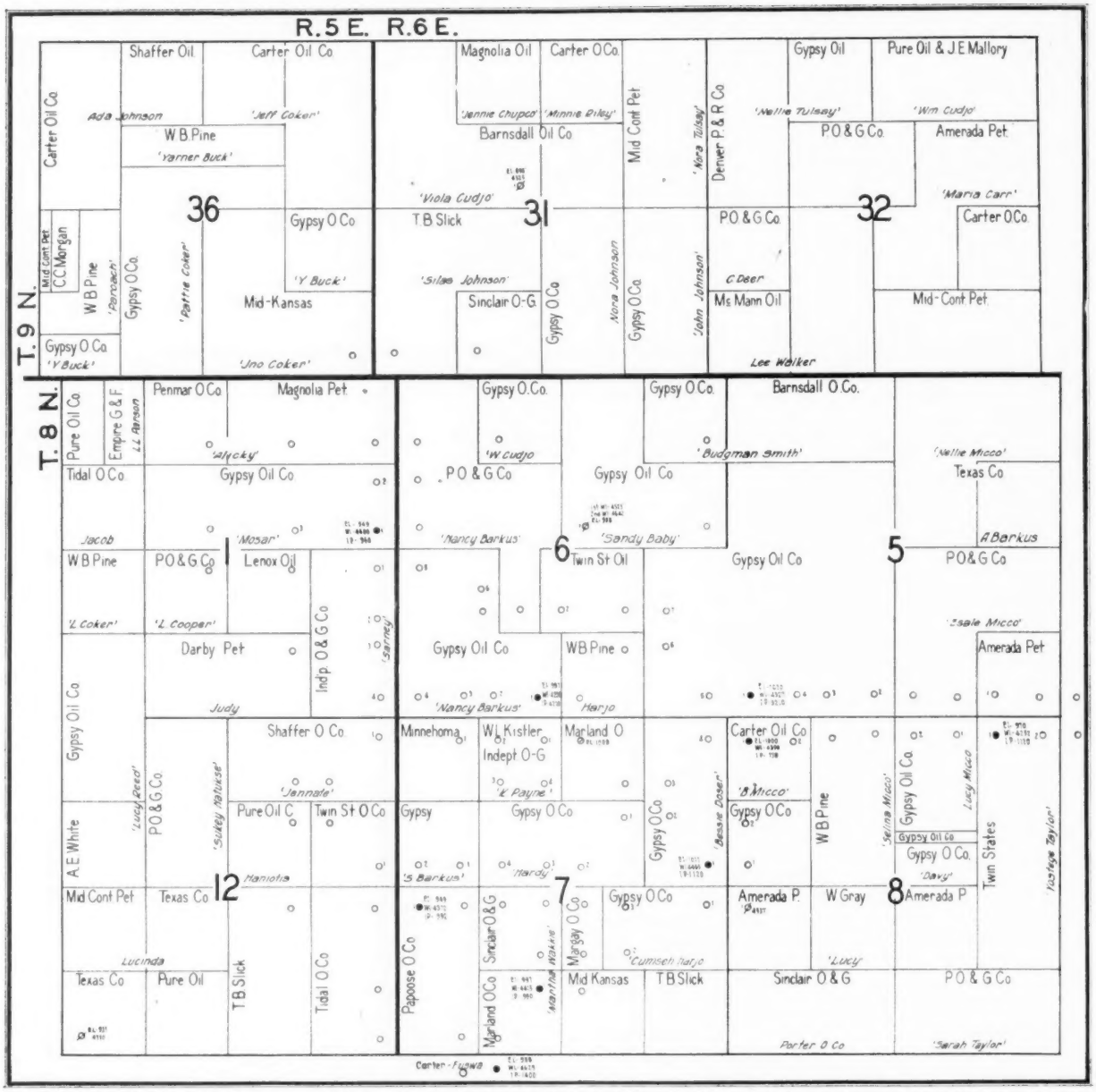
The Earlsboro field added a gasser to its list. The McCulloch No. 1 Rentie, in the NE NW NW of 7-9-6, on the east edge of the pool is good for about 50 million feet of gas from the Cromwell at 3325 feet.

Other Oklahoma regions remained comparatively quiet. Two Hughes county wildcats are starting up, one in 21-7-8 and the other in 12-8-8. The Texas Co. is drilling the former and Bunte et al. are responsible for the latter.

Pawnee county, Okla. has a wildcat showing which may make a light well. The Washoma No. 1 Buffalo, in SE NW of 33-22-5 had a pay from 3134-90, which was shot with 100 quarts. The hole filled up 2800 feet with oil, the test being estimated as good for about 20 barrels.

None of the wells drilling around the Wilcox producer of the Gypsy-Marland-Bu-Vi-Bar interests in Sedgewick county, Kans. are in yet. The test of Allison et al., the most nearly completed of the few that are drilling, is in the lime at 3100, having topped the chat 3074. McPherson county has a new well, the Midco No. 1 Hawkinson, in the NW SE of 32-18S-2W, is making 1,000,000 feet of gas and spraying 75 barrels of oil daily from a pay at 2965-72.

Gray county, in the Texas Panhandle, is getting active again. A Phillips Petroleum Co. well in Sec. 87, Blk. B-2 H. & G. N. Survey, an old well in the Bowers pool, is doing 107 barrels an hour after being cleaned out.



The Mission pool of Seminole county, which will be the most active field in Okla. starting Nov. 15. Development of this field, which has been dormant for several months, will be at the rate of two wells per 40-acre tract. In cases where more locations than this are shown on the map the operating companies are undecided as to which wells will be drilled. The remaining locations will not be drilled until Jan. 1, 1929. Legend El.-Elevation. W1. Wilcox sand. I. P. Initial Production

New Gas Well Completed In Muskegon Field

CHICAGO, Oct. 27.—Johnson Oil Refining Co. of Chicago completed a gas well in the Muskegon, Mich., oil field with an initial daily flow of 6 million cubic feet on Oct. 27. This is Johnson's second gas well in the field.

The city of Muskegon is consuming between 800,000 and a million cubic feet of natural gas a day in domestic and industrial installations and Johnson Oil & Refining Co. is supplying approximately half of it.

The new gas well is situated in the southeast quarter of Sec. 5 and was completed at 2063 feet. Homer Johnson, the company official most active in matters of production, says he believes the gas flow could have been materially increased by drilling deeper but under the regulations set up by the state, it is not economic to produce gas and oil together and the management was afraid drilling deeper might bring in oil.

Mexican Production in 1928 Off 12 Million Barrels

WASHINGTON, Oct. 29.—Although usually statistics relating to the production of petroleum or its refining are collected by the Bureau of Mines or the Geological Survey, the Bureau of Foreign and Domestic Commerce has taken note of the decline of production in Mexico. It has gone on record that the statistics of production in the first six months of 1928 indicate that the production for the year will decline 12,000,000 barrels below the figure for 1927.

Last year the production was 61,353,480. A decline of 12,000,000 barrels would run the total down to less than 50,000,000 barrels, a figure below that for 1917, the first year Mexico began bulking large in the world's production figures. Of course, these figures relate to what is known as the Tampico fields, northern and southern.

In its bulletin the bureau cautiously mentioned the causes of the decline, which became marked in 1927, with a fall of 34 per cent compared with the preceding year, which, in turn showed a heavy reduction in comparison with 1925.

Incursion of salt water in every producing area and the failure of 60 per cent of the wells drilled in 1925 and 1926 were mentioned as causes.

Prorating of Yates Shallow Field Sets Mark in Cooperative Work

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, Oct. 18

AFTER more than a year of prorating practice, a west Texas oil field credited with final recoveries of 260,000,000 to 500,000,000 barrels is being held to daily average production of 72,500 barrels, apparently without effort.

It is the Yates field of Pecos county, where 269 producing wells have credited to them in the prorating yardstick a total potential of more than 4,000,000 barrels and an average potential exceeding 2,000,000 barrels daily.

The successful handling of the Yates situation stands as an epic in the petroleum industry that may remain indefinitely as the industry's greatest cooperative effort to balance production with market outlets.

Never before have 20 operating interests worked together so consistently in attaining a common end as in the Yates field; and royalty owners, also, have failed to register a single recorded complaint.

It should be borne in mind, also, that in the approximately 13 months of prorating practice the Yates field has grown to a total of 14,850 proved acres, embraced in 148½ units of 100 acres each, from a small fraction of the present total. When prorating was begun, the number of wells opened up from their previously shut in condition totaled 23 as compared with the present 269 producing.

Since the beginning of prorating, Oct. 1, 1927, Yates operators have been agreed on the major principles of keeping production within the limits of market outlet; the avoidance of above-ground storage for sulfur crude; and the maintenance of reservoir pressures through orderly withdrawals.

It was necessary to pursue give-and-take policies, of course, in conducting the "University of Prorating" that resulted in the present system of basing withdrawals 25 per cent on proved acreage and 75 per cent on average potential production of 100-acre units. The Yates situation was handled, however, without friction gaining headway at any time.

Each successively applied yardstick has been found more workable in the Yates field than the preceding one. At first, a market outlet of 30,000 barrels daily was prorated on the basis of individual company total potential in relation to the field total to gain production percentages. That plan accomplished other purposes of prorating but stimulated drilling to build up potentials and, thereby, gain increased runs.

A second plan, effective from Jan. 1 to June 30, 1928, based production percentages on proved acreage of the individual company in relation to the field total, without regard to potential.

The acreage system was abandoned in favor of the present, or third, method because it took no account of the relative producing values of "rich" and "lean" properties, or wells. The present yardstick, in addition to providing such "weighting" of acreage, permits crude oil withdrawals from wells at approximately their pro rata under natural conditions in competitively drilled fields.

When Yates operators abandoned voluntary agreements and asked the Railroad Commission of Texas to issue an order, effective July 1, 1928, they established a similar background of prorating machinery to that which

(*Continued on Page* 52)

Table Showing Increase of Yates Field Potential Production

Prorating Periods	Number Wells	Bbls. Total Potential	Bbls. Avg. Potential	Barrels Market Outlet
Oct. 1-15, 1927 (1)	23	172,845	.....	30,000
Oct. 16-31, 1927	30	231,272	....	37,000
Nov. 1-15, 1927	41	313,371	.....	37,000
Nov. 16-30, 1927	56	447,254	.....	37,000
Dec. 1-15, 1927	70	604,974	.....	42,000
Dec. 16-31, 1927	(Carried forward as in first half of month.)			
Jan. 1, 1928 (2)	112	874,070	.....	48,000
Jan. 1-June 30, 1928	(Field prorated on acreage basis)			(3)
July 1-15, 1928	206	2,575,047	991,824	65,000
July 16-31, 1928	222	2,819,237	1,220,621	65,000
Aug. 1-15, 1928	243	3,012,925	1,398,653	65,000
Aug. 16-31, 1928	245	3,194,156	1,484,884	(4)
Sept. 1-15, 1928	248	3,425,923	1,703,440	72,500
Sept. 15-30, 1928	259	3,835,651	1,969,094	72,500
Oct. 1-15, 1928	262	4,008,075	2,089,567	72,500
Oct. 16-31, 1928	269	4,049,305	(5)	72,500

(1)—Beginning date of Yates field prorating.
(2)—Unofficial gage of potential production.
(3)—Market outlet increased to 51,500 barrels, April 1, 1928
(4)—Market outlet increased to 72,500 barrels Aug. 20, 1928.
(5)—Round figures about 2,100,000 barrels.

Production Records of Yates Field Deepened Wells

Company — Well	Original Depth (Feet)	Per Hour Initial Prod.-Bbls.	Deepened To - Ft.	New I. P. In Bbls. Per Hour
California Co.				
Yates 8	1311	235	1370	3850
Gulf Production Co.				
Smith 1	1362	70	1480	850
Smith 7	1690	170	1720	150
Yates 6	1305	360	1367	700
McMan & Marland Partnership				
Yates 1	1315	165	1328	1000
Yates 12	1344	80	1431	160
Marland Production Co.				
Yates A-5	994	400	1016	1515
Yates A-8	991	20	1047	580**
Mid-Kansas & Transcontinental Partnership				
Smith-Taylor 2	1374	95	1459	720
Yates A-1*	1032	2280x	1150	700
Yates A-3	1082	1000x	1217	1194
Yates A-5	1316	120	1355	2000
Yates A-10	1075	500	1077	1192
Yates A-11	1040	700	1180	1500-2000
Yates A-12	1086	187	1200	420
Yates A-13	....	....	1150	489
Yates B-2	1372	150	1422	212
Yates B-8	1063	520	1075	1600
Yates B-19	1332	308	1390	995
Yates B-20	1307	300	1376	1235
Yates B-21	1106	295	1149	861
Yates C-1	....	....	1182	288
Yates C-7	1027	2139x	1091	286
Simms Oil Co.				
Smith 1	1385	150	1470	1222
Smith 6	1132	250	1275	1340
Roxana Petroleum Corp.				
Smith A-1	1566	500x	1607	202x
Smith A-2	1578	20	1594	34½
Smith A-4	1704	12	1724	29
Smith A-5	1540	448x	1582	67
Tippett 1	1400	102	1502	347
Tippett 4	1425	700	1434	385
Tippett 7	1278	425	1330	272

*—Discovery well.
**—Daily; 50 per cent water.
x—Daily.

Second Well in Buckbee Sand Is 3500-Barrel Producer

By William E. Green
N. P. N. STAFF WRITER

LOS ANGELES, Oct. 27

SECOND well at Santa Fe Springs to penetrate the body of deep oil sand, known as the Buckbee, started out making 4250 barrels of oil and settled to 3500 barrels of 33.8 gravity oil with bottom of hole at 5819 feet. This is Texas Co.'s Mattern 2-7. The 6⅝-inch casing was cemented at 5670 feet, giving the well a penetration of 149 feet. The flow was made during a production test with no tubing in the hole. This well has been watched very closely by the other operators in the field, as some 200 wells are now drilling for the new deep sand and the owners of the discovery well continue to refuse to furnish any information.

The Getty burning well is now producing 2500 barrels of oil that is running into tanks through lines tapped into the 9-inch casing through the tunnel. The well is making 7,000,000 cubic feet of gas through the lines through the tunnel and it is estimated that about 500 barrels of oil and 1,000,000 cubic feet of gas is flowing beyond control and burning. Midway Gas Co. compressors have been hooked up to lines into 9-inch through tunnel and close to 90 per cent of the gas and oil production is being saved. This greatly reduces the pressure at the mouth of the well, and it probably will be controlled in the next day or so.

The Getty well was drilled to a total depth of 5410 feet, with bit stopping in an oil sand from 5395 feet to bottom. A gas sand had been cored at 4900 feet, some 300 feet below the bottom of the Meyer oil sand.

The well went wild Sept. 16 when the tools were being run out of the hole, and for three weeks oil and gas coming up through the drill pipe were also burning. Connections were made with drill pipe and 3000 sacks of cement pumped into the hole. For more than 50 hours heavy mud was also pumped into hole. The cement and mud had very little effect. The 4-inch drill pipe was penetrated and a ball placed therein, which lodged at the mouth, shutting off the flow through this pipe.

Operators are rushing the drilling at Santa Fe Springs and a number of wells are due for completion late in November and early in December. Superior Oil Co.'s Wardsman 4 and 5, on account of crooked holes reached a supposed total depth of about 6000 feet without finding the new Buckbee zone. Both wells are now being plugged back to about 1250 feet to drill new holes.

This is a townlot drilling campaign and practically every well started calls for an offset. The deeper zone has been suspected for many months but the major operators constantly urged that it not be developed at this time. Wilshire Oil Co. drilled into the deeper zone for a good producer and started the fireworks.

Operators have been forced to work in the dark as Wilshire refused any information.

In the Kettleman Hills section, Kings County, Milham Exploration Co.'s wild gasser is still making between 20,000,000 and 30,000,000 cubic feet of gas in addition to about 300 barrels of oil spraying over the country. Efforts are continuing to bring the well under control with little success. Well located acreage has brought forth bonus bids as high as $1200 an acre. The wild well is approximately 7200 feet in depth and there is no immediate danger of a big drilling campaign, although it is expected that some three to four wells will be started in the near future.

Republic's No. 31 in the old Midway field was completed Oct. 22 for 1500 barrels of 24 gravity oil, with the casing pressuring reaching 750 pounds. This well is producing from a deeper zone uncovered several months ago, but most of the best acreage is held by Chanslor-Canfield-Midway Oil Co., Santa Fe subsidiary. Due to the holding of the acreage in large blocks by only two or three companies it is certain that the new deep sand will not be drilled in a hurry as there is very little gasoline in the crude.

Pacific Eastern (Gulf Oil) is testing Fruitvale No. 1 this week on the pump in the new Fruitvale field just outside the city limits of Bakersfield to the east, and it is making infrequent heads of oil. Same company's B5 test settled down to 1400 barrels of 22 gravity clean oil. Lahorne 1 is to drill out for a test early next week and No. 6 in same field is preparing to spud.

Although there are around 175 wells drilling at Long Beach, developments during the week were without unusual interest.

Harold C. Osman, secretary of the Nugent Steel Castings Co., Chicago, and formerly in charge of sales, has been appointed works manager, according to W. J. Nugent, president.

Underwood & Underwood Studios
W. S. S. RODGERS

Rodgers Now Vice President Of The Texas Co.

NEW YORK, Oct. 27.—W. S. S. Rodgers, 13 years with The Texas Co., has been elected vice-president in charge of domestic sales. Mr. Rodgers has also been made a vice-president of the Texas Corp. He assumed his new duties on Oct. 1.

Mr. Rodgers' career with The Texas Co. began in the company's asphalt plant at Port Neches, Tex., early in 1915. From a position in the laboratories there he was first promoted to the job of acting assistant superintendent of the Norfolk, Va. terminal of the company. Shortly following this he was made foreman of the Delaware River asphalt plant. Assistant superintendent of the company's Bayonne terminal was his next promotion.

His term as assistant general superintendent of all northern terminals was interrupted by the war. Mr. Rodgers was commissioned as captain of ordnance at Plattsburg, N. Y. Shortly after his return with the company he was made assistant general superintendent of the Port Arthur works. In January, 1923 he was made general superintendent of all the company's terminals. This was followed by the assignment of special duties in the New York office and on March 20, 1926 he was made assistant to the president.

Mr. Rodgers was graduated from the Yale College of Mining Engineers with degree of Bachelor of Philosophy in 1907. He is 42 years old and single.

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Yates Prorating Sets Mark In Cooperative Work

(*Continued from Page 49*)

affects other west Texas fields.

Details differ, however, in the yardsticks applied in each prorated field. Whereas Yates is prorated 25 per cent on proved acreage and 75 per cent on average potential production, the Winkler yardstick is figured 50 per cent on proved ground and 50 per cent on total potential of 40-acre units. Howard-Glasscock county production is prorated 50 per cent on 24-hour gages of daily production and 50 per cent on proved ground in 40-acre units.

As compared with Yates field allowable production of 72,500 barrels daily, fixed by the operators themselves, the Winkler maximum is now 150,000 barrels and the Howard-Glasscock limit 25,000 barrels.

The Yates field practice of averaging potential production discounts a large part of the fictitious rating obtained in using total potential production figures based on 1 hour gages to indicate daily open flow "possibilities."

When a single well is producing on a Yates field unit its potential is obtained by taking a 1-hour gage and multiplying the barrels of flow by 24 to gain an estimate of the daily capacity.

Where there are two or more wells on a unit their similarly gaged potentials are added together and an average reached by dividing the total by the number of wells. The resulting average potential is then used in the prorating yardstick.

The extent to which "total potential" and "average potential" ratings of wells differ is shown in an accompanying table of field totals by semi-monthly, and longer, periods. Reference to the table will show that average potential approximates half of the total potential obtained by the old method.

It would be necessary to discount the average potential somewhat further to gain an accurate estimate of the exploitable open flow, were such producing practice possible, or desirable, in a natural water drive area such as the Yates field.

Many engineers believe an accurate figure would approximate 60 to 70 per cent of the average potential, or 30 to 35 per cent of the total potential, as gaged in Yates field.

The Yates potential is regarded as relatively higher in percentage terms than that of the Winkler area, where only total potentials are figured in prorating. There, it is believed, the total potential of 2,798,134 barrels used in the prorating yardstick of Oct. 15-31 would have to be discounted as much as 80 per cent to gain a fairly accurate estimate of exploitable open flow production.

Back pressure automatically created in prorating the Yates field has staved off water encroachments except on patently edge wells. Had it not been for such practice from the beginning considerable encroachment would have been inevitable, as witness the situation in Winkler territory, which produces from similar honeycomb formation.

It is not meant here to convey the impression that the lime producing formations of the Yates and Winkler areas are identical. The formations are broken and faulted to far greater extent in Winkler county. Both areas have in common, however, similar porosity conditions in the lime.

In Yates field, the 35 wells that have shown some degree of water encroachment have been confined to east and northwest edge properties, except in the case of the Roxana Petroleum Corp.'s No. 6 M. A. Smith, sec. 27, block 194. That well is believed also to approximate edge characteristics because of being in a structural "saddle" indicated by surface geology.

After drilling to 1602 feet, the Roxana well showed 4 per cent water and 8 per cent b.s., but later flowed 111.29 barrels clear oil in one hour on prorating test.

As previously pointed out in this paper, two partly false conceptions have gained place in the minds of persons watching west Texas development from afar. One is that the underlying water table will push all the oil ahead of it through the producing formation and that once encroachment appears a well is doomed. The other refers to the "parallelism" drawn between the porosities, and hence water conditions, in fields of west Texas and Mexico.

Porosities in west Texas are not nearly as great as in Mexico, nor does the water table rise under identical conditions. It is by no means certain the pressure of the Yates field hydrostatic head would not be overcome by the exploiting of large quantities of oil up-structure.

The hydrostatic head in such fields has been built up over great lengths of time and, engineers say, the porosity in the pay horizon may not be sufficient to permit immediate and automatic adjustment to maintain pressure.

Appearance of water in fields of the Yates type always creates producing problems, because of necessity for dehydrating the oil. An offsetting advantage is, of course, the maximum recovery caused by the flushing influence of water on the pay horizon.

The deepening of about 30 wells in the Yates field has disclosed an amazing thickness of oil pay. Many have been drilled 100 to 200 feet into the pay and some of them about 225 feet, the maximum allowable under a rule enforced by operators to protect against bottom water.

Seminole District Production by Companies and Leases, October 25 and October 18, 1928

LITTLE RIVER

Company	Farm	S.T.R.	Oct. 25 Wells	Oct. 25 Prod.	Oct. 18 Wells	Oct. 18 Prod.
Amerada	Nitey	2- 7-6	3	1,030	3	1,095
Amer. Wilcox	Fore	35- 8-6	2	330	2	320
Total Amerada			5	1,360	5	1,415
Barnsdall	Cotcha	23- 7-6	2	1,730	2	1,930
Barnsdall	Hutulka	22- 7-6	2	586	2	597
Barnsdall	Walker	4- 7-6	1	500	1	535
Total Barnsdall			5	2,816	5	3,062
Blackwell	Baker	11- 7-6	4	2,185	4	2,120
Blackwell	Nitey	35- 8-6	6	1,455	6	1,692
Blackwell	Talley	14- 7-6	3	930	3	1,090
Total Blackwell			13	4,570	13	4,902
Bryan-Emery		4- 7-6	1	13	0	0
Carter	Cotcha-M	23- 7-6	3	390	3	460
Carter	Cudjo	23- 7-6	1	0	1	15
Carter	Fish	36- 8-6	4	480	4	660
Carter	Harjo-C	11- 7-6	2	7,261	1	7,018
Carter	Harjo-M	13- 7-6	2	1,120	2	1,221
Carter	Jackson	11- 7-6	3	1,535	3	1,617
Carter	Larney	24- 7-6	2	1,368	2	1,475
Carter	Lena	10- 7-6	1	1,150	1	1,275
Carter	Moore	11- 7-6	2	895	2	1,147
Carter	Tewee	14- 7-6	5	4,555	5	4,812
Carter	Thomas	11- 7-6	2	475	2	537
Carter	Wilson	12- 7-6	2	753	2	860
Total Carter			27	19,982	27	21,097
Champlin	Tewee	14- 7-6	2	2,315	2	2,420
Continental	Cosar	36- 8-6	7	2,070	7	1,530
Continental	Cosar M	25- 8-6	1	470	1	135
Cont. et al	Milsey	11- 7-6	1	1,940	1	2,120
Total Continental			9	4,480	9	3,785
Empire	Charty	24- 7-6	1	480	1	257
Empire	Coker	13- 7-6	1	230	1	222
Empire	Sandlin	3- 7-6	1	11	1	10
Total Empire			3	721	3	489
Gypsy	Brown C	33- 8-6	2	837	2	930
Gypsy	Brown M	33- 8-6	1	1,140	1	1,172
Gypsy	Campbell	33- 7-6	2	52	2	57
Gypsy	Conard	22- 7-6	2	1,117	2	1,125
Gypsy	Cosar M	25- 8-6	1	0	1	0
Gypsy	Cosar W	35- 8-6	2	170	2	382
Gypsy	Cotcha	23- 7-6	4	2,150	4	2,562
Gypsy	Denmark	11- 7-6	4	3,302	4	2,995
Gypsy	Hulhoke	14- 7-6	10	5,955	10	6,967
Gypsy	Mungee	1- 7-6	1	15	1	22
Gypsy	Pottie	35- 8-6	4	995	4	762
Gypsy	Renton	11- 7-6	3	865	3	897
Total Gypsy			34	16,598	34	17,871
Independent	Davis R	13- 7-6	3	1,715	2	740
Indep.	Tewee	14- 7-6	6	3,390	6	3,992
Indep. et al	Harris	23- 7-6	8	3,145	8	3,770

(*Continued on Page 53*)

Seminole District Production by Companies and Leases, October 25 and October 18, 1928

(Continued from Page 52)

Company	Farm	S.T.R.	Oct. 25 Wells	Oct. 25 Prod.	Oct. 18 Wells	Oct. 18 Prod.
Indep. W. Eagle	Davis	3- 7-6	4	1,235	4	1,165
Indep.	Williams	15- 7-6	1	1,085	1	1,175
Total Independent			21	10,570	21	10,832
I. T. I. O.	Campbell	1- 7-6	1	185	1	206
I. T. I. O.	Dungan	35- 8-6	3	1,200	3	1,280
I. T. I. O.	House MA	1- 7-6	1	21	1	51
I. T. I. O.	House WE	1- 7-6	1	32	1	49
I. T. I. O.	House B	2- 7-6	4	871	4	844
I. T. I. O.	Hull	26- 8-6	3	711	3	727
I. T. I. O.	Jackson	1- 7-6	3	851	3	882
I. T. I. O.	McCulla	1- 7-6	3	560	3	538
I. T. I. O.	Nitey	1- 7-6	6	135	6	172
I. T. I. O.	Phoebe A	36- 8-6	3	245	3	258
I. T. I. O.	Phoebe B	36- 8-6	4	185	4	188
I. T. I. O.	Reed	1- 7-6	1	0	1	36
I. T. I. O.	Soketheche	1- 7-6	3	603	3	591
Total I. T. I. O.			36	5,599	36	5,822
Magnolia	Cruse	2- 7-6	4	416	4	966
Magnolia	Denby	11- 7-6	3	1,408	2	928
Magnolia	Dixon	31- 8-7	1	6	1	3
Magnolia	Harjo A	14- 7-6	2	400	2	570
Magnolia	Harjo B	14- 7-6	2	1,320	2	1,256
Magnolia	Pottie	35- 8-6	4	600	4	564
Magnolia	Reed I	22- 7-6	3	1,208	3	1,336
Magnolia	Reed E	31- 8-7	1	21	1	40
Total Magnolia			19	5,379	19	5,663
McCulloch-Sands	Haines	4- 7-7	1	70	1	86
Mid-Continent	Bruner	11- 7-6	4	2,185	4	2,265
Mid-Continent	Eleck	23- 7-6	1	440	1	405
Mid-Continent	Smith	5- 7-6	1	1,545	1	1,570
Mid-Continent	Wadsworth	36- 8-6	7	435	7	380
Total Mid-Continent			13	4,605	13	4,620
W. B. Pine	Hoyecha	26- 8-6	6	2,968	5	2,525
Pine-Phillips	Pottie	35- 8-6	2	360	2	450
Total Pine			8	3,328	7	2,975
Prairie	Chilcoat	25- 8-6	3	875	3	425
Prairie	Dungan	36- 8-6	1	40	1	35
Prairie	Gibson	14- 7-6	6	3,070	6	3,810
Prairie	Harris	14- 8-6	3	1,555	3	1,550
Prairie	House	2- 7-6	4	340	4	480
Prairie	Moppin	24- 7-6	1	425	1	385
Prairie	Talley	14- 7-6	4	2,390	4	2,625
Prairie-Amer.	Sunny	14- 7-6	8	7,350	8	7,645
Total Prairie			20	16,045	20	16,955
Pure	Cotcha	14- 7-6	9	5,166	9	5,700
Pure	Harjo	11- 7-6	4	1,374	4	2,252
Total Pure			13	6,540	13	7,952
Reiter-Foster	Bunyard	14- 7-6	4	4,105	4	3,440
Roxana	Caesar	11- 7-6	1	36	1	41
Roxana	Hotulke	23- 7-6	4	1,242	4	1,379
Roxana	Johnson	13- 7-6	3	2,518	3	1,968
Total Roxana			8	3,796	8	3,388
Shaffer	Narcome	36- 8-6	2	200	2	270
Sinclair	Cosar	36- 8-6	3	845	3	885
Sinclair	Haney	12- 7-6	1	105	1	120
Sinclair et al.	Pompey	24- 7-6	1	445	1	440
Sinclair	Tewee	14- 7-6	2	2,315	2	2,455
Total Sinclair			7	3,710	7	3,900
Skelly	Carl	14- 7-6	2	2,216	1	2,465
Slick	Reed	13- 7-6	1	1,380	1	1,430
Slick	Williams	15- 7-6	2	575	2	947
Total Slick			3	1,955	3	2,377
Snowden et al.	Tiger	13- 7-6	3	1,650	3	1,717
Superior	Potulka	31- 8-6	1	5	1	5
Superior	Soketheche	1- 7-6	1	0	1	7
Total Superior			2	5	2	12
Texas	Brooks	25- 8-6	1	160	1	157
Texas	Coker	1- 7-6	3	600	3	635
Texas	Janey	11- 7-6	3	1,510	2	1,385
Tex-Indep	Hotulke	23- 7-6	3	1,735	2	1,335
Total Texas			9	4,005	8	2,187
Tidal	House	1- 7-6	3	480	3	490
Tidal	Johnson	1- 7-6	1	25	1	25
Total Tidal			4	505	4	515
Twin State	Lowe	25- 8-6	1	130	1	150
TOTAL LITTLE RIVER			292	127,268	286	131,715

EARLSBORO

Amerada	Anderson	15- 9-5	2	535	2	530
Amerada	Cowden	4- 9-5	7	1,170	7	1,249
Amerada	Rogers	3- 9-5	2	178	2	244
Total Amerada			11	1,883	11	2,023
Atlantic et al.	Foreman	18- 9-5	1	140	1	140
Barnsdall	Brown	10- 9-5	4	2,135	4	2,261
Barnsdall	F. Bruner	2- 9-5	3	289	3	461
Barnsdall	Bruner	10- 9-5	3	431	3	1,051
Barnsdall	Cudjo	14- 9-5	1	23	1	23
Barnsdall	D. Davis	11- 9-5	3	239	3	308
Barnsdall	J. Davis	11- 9-5	4	1,039	4	1,268
Barnsdall	M. Davis	11- 9-5	2	63	2	61
Barnsdall	Gibson	9- 9-5	8	1,976	8	2,107
Barnsdall	Hern	15- 9-5	1	2	1	2
Barnsdall	Ingram	1- 9-5	8	933	8	1,055
Barnsdall	Pack	10- 9-5	4	166	4	167
Barnsdall	Peter	10- 9-5	4	93	4	90
Barnsdall	Sango	1- 9-5	4	2,246	4	2,426
Barnsdall	Sebolka	15- 9-5	1	289	1	246
Barnsdall	H. Sullivan	11- 9-5	1	19	1	0
Barnsdall	Sull-Harjo	10- 9-5	2	33	2	31
Barnsdall	Watsutke	12- 9-5	4	525	4	1,018
Total Barnsdall			57	10,471	57	12,475
Burk Greis	Wisner	6- 9-6	1	1,010	1	1,160
Carter	Davis	13- 9-5	2	170	2	105
Carter	James	6- 9-5	4	4,588	4	4,565
Carter	Sango	1- 9-5	1	15	3	20
Total Carter			9	4,773	9	4,690
Continental	Kays	2- 9-5	2	60	2	10
Continental	Spencer	12- 9-5	4	1,130	4	1,170
Total Continental			6	1,190	6	1,180
Empire	Barker	12- 9-5	1	85	1	67
Empire	Edmundson	3- 9-5	3	110	3	160
Total Empire			4	195	4	227
Gypsy	Bruner	10- 9-5	4	3,567	4	3,552
Gypsy	B. Carter	11- 9-5	8	3,750	8	4,130
Gypsy	Earl	16- 9-5	1	19	1	9
Gypsy	Hanick	6- 9-5	1	1,957	1	2,095
Gypsy	Noble	12- 9-5	4	1,725	4	2,077
Gypsy	Peter	10- 9-5	3	275	3	300
Gypsy	Sango	1- 9-5	11	5,030	11	5,497
Gypsy	State	16- 9-5	4	850	4	1,160
Total Gypsy			36	17,173	36	18,820
Independent	Bruner	10- 9-5	3	465	3	460
Independent	Sullivan	10- 9-5	1	22	1	20
Independent	Knapp	8- 9-5	3	1,205	3	1,365
Indep.-Margay	Gaines	11- 9-5	3	450	3	575
Total Independent			10	2,142	10	1,845
Magnolia	Bryant	9- 9-5	6	402	6	439
Magnolia	Cowden	4- 9-5	4	35	4	40
Magnolia	Dixon	12- 9-5	1	23	1	25
Magnolia	Edmundson	3- 9-5	2	15	2	5
Magnolia	Holmsley	11- 9-5	7	700	7	870
Magnolia	Hyde	13- 9-5	1	1,502	1	1,560
Magnolia	Ingram	10- 9-5	1	16	1	15
Magnolia	Lena	10- 9-5	3	49	3	48
Magnolia	Seay	12- 9-5	9	2,547	9	2,310
Magnolia	Simpson	10- 9-5	4	479	4	500
Magnolia	Sparks	11- 9-5	7	823	7	850
Magnolia	Sullivan	12- 9-5	3	105	3	68
Total Magnolia			48	6,696	48	6,730
Mid-Cont.	McCumber	9- 9-5	7	67	7	90
Mid-Kansas	Anderson	14- 9-5	3	65	3	65
Phillips	Dunnaway	14- 9-5	1	25	1	25
Prairie	Baker	24- 9-5	1	50	1	50
Prairie	Davis	13- 9-5	3	2,786	3	2,780
Prairie	C. Graham	3- 9-5	2	25	2	20
Prairie	O. Graham	10- 9-5	4	1,105	4	1,160
Prairie	Stidham	11- 9-5	11	2,090	11	2,175
Total Prairie			22	6,055	22	6,185
Roxana	Bayliss	17- 9-5	1	15	1	12
Roxana	Hearn	13- 9-5	1	128	1	127
Roxana	Spencer	12- 9-5	2	1,306	2	2,129
Total Roxana			4	1,449	4	2,268
Shaffer	Clark	1- 9-5	3	222	3	264
Shaffer	McCoy	36-10-5	1	1,135	1	1,160
Total Shaffer			4	1,357	4	1,424
Sinclair	Foreman	18- 9-5	1	15	1	15
Sinclair	Hollins	12- 9-5	1	35	1	35
Sinclair	Sango	2- 9-5	4	3,045	4	2,875
Total Sinclair			6	3,095	6	2,925
Skelly	Mays	1- 9-5	1	2,745	1	2,160
Skelly	Shephard	6- 9-6	1	1,409	1	1,510
Skelly	Sherry	6- 9-6	2	1,678	2	1,405
Skelly	Spencer	12- 9-5	1	501	1	0
Total Skelly			5	6,333	5	5,075
Slick et al.	Campbell	6- 9-6	1	786	0	0
Superior	Ingram	1- 9-5	1	1,000	1	785
Superior	Walker	2- 9-5	3	2,949	3	2,997
Total Superior			4	3,949	4	3,782
Texas	Anderson	2- 9-5	8	415	8	390
Texas	Brown	10- 9-5	8	470	8	370
Texas	James	6- 9-6	1	605	1	710
Texas	Rogers	5- 9-5	4	2,440	4	2,415
Texas	Wilmott	10- 9-5	7	725	7	480
Total Texas			28	4,655	28	4,365
Tidal	Walker	36-10-5	1	1,995	1	2,170
Tidal	Watkins	9- 9-5	7	2,845	7	2,745
Total Tidal			8	4,840	8	4,915
Twin State	Barker	12- 9-5	3	39	3	69
Twin State	Hern	2- 9-5	4	295	4	250
Total Twin State			7	334	7	319

SUMMARY

	Oct. 25 Wells	Oct. 25 Prod.	Oct. 18 Wells	Oct. 18 Prod.
TOTAL EARLSBORO	**282**	**78,713**	**283**	**81,719**
TOTAL BOWLEGS	**311**	**51,856**	**312**	**50,337**
TOTAL SEMINOLE	**287**	**42,376**	**287**	**41,783**
TOTAL SEARIGHT	**67**	**11,524**	**67**	**11,817**
TOTAL LITTLE RIVER	**292**	**127,268**	**286**	**131,715**
GRAND TOTAL SEMINOLE AREA	**1,239**	**311,737**	**1,235**	**317,371**
Average per well			**252**	**257**

Completions in Texas, Week Ended October 27, 1928

NORTH EAST CENTRAL TEXAS

Anderson County

Company	Well Farm	Survey	Sec. and Blk.	Depth	Init. Prod.
Humble	3-Mandelstam	Roberts		3684-3727	371
Humble	1-Roberts	Roberts		3600-3634	155

Brown County

Nat. Gas & Fuel	3-Capps	Hunt	Blk-18	1548-1560	5
Bearman et al	1-Miller	Swindell		1078-1100	7
Spear-Malone-Starr	1-Graham	Brown	Sec-1 Blk-137	T.D. 1266	Dry
Rowan-Fong	1-Jones	Gross		T.D. 1300	Dry
Neiswanger et al	1-Duff	Honeycutt	Blk-623	T.D. 1192	Dry
Hart et al	2-Hart et al.	H&TC	Blk-35	T.D. 1260	Dry
Gulf Prod	1-Belvin	Chaddick	Sec-42	T.D. 1300	Dry
Chestnut-Smith et al.	1-Hennegan	MEP	Blk-1	T.D. 1200	Dry
Baker et al	1	HT&B	Sec-43	T.D. 1367	Dry

Callahan County

Childs et al	1-Foster	Comal Co. Sch. Ld.	Sec-43	T.D. 510	Dry
Calloway et al	3-Klutts	Comal Co. Sch. Ld.	Sec-44	T.D. 471	Dry
Beddingfield et al.	2-Cavanough	Comal Co. Sch. Ld.	Sec-47	T.D. 471	Dry
Andrews	2-Pippin	TE&L	Sec-3167	T.D. 1228	Dry
Beddington et al.	1-Cavanough	Comal Co. Sch. Ld.	Sec-47	437-440	50
Calloway et al	2-Klutts	Comal Co. Sch. Ld.	Sec-44	440-448	64
Schaffner	1-Derrington	Anderson		305-335	½M

Cherokee County

Humble	2-Weinberg	Trimble		T.D. 3042	Dry

Coleman County

Derby	7-Jennings	Lipscomb	Blk-94	1144-1149	50
McGahkey et al	1-Welch	Humphrey		T.D. 1174	Dry
Gray	1-Hefner	Quigley		T.D. 2570	Dry
Collins et al	1-Thomas	Waters	Blk-114	T.D. 1150	Dry

Comanche County

Frame	1-Short	H&TC	Sec-50	T.D. 925	Dry

Eastland County

Bryant	1-Pinkston	Click		T.D. 2810	Dry
Schimmel Prod	1-Hazzard	Van Norman		T.D. 3506	Dry
Arkansas	6-Lyerla	Ussery		T.D. 1260	7
Arnold et al	1-Rust	H&TC	Sec-44 Blk-4	1537-1542	50
Hopkins et al	1-Jones	H&TC	Sec-43 Blk-4	3571-3578	4M

Erath County

Peters et al	1-Davis	Goff		3350-3360	10M

Haskell County

Moody Corp	1-Reynolds	Fenner		1728-1732	150

Jack County

Panhandle Prod. & Ref.	1-McKelrey	Hughson		2930-2944	115
Panhandle Prod. & Ref.	1-Keith	Riley		T.D. 3060	Dry

Jones County

Roberts et al	5-Grayson	T&P	Sec-13 Blk-19	T.D. 2551	Dry
Phillips	1-Sharp	T&P	Sec-14	T.D. 3017	Dry
Hines et al	1-Saunders	T&P	Sec-1 Blk-15	T.D. 2040	Dry
Hurley	1-Gunter	T&P	Sec-34 Blk-18	T.D. 3023	Dry
McMann	1-Tyner	T&P	Sec-14 Blk-19	T.D. 2556	Dry
Snowden-McSweeney	1-Bickley	T&P	Sec-50 Blk-18	2482-2490	1620
Marland	4-Mason	T&P	Sec-18 Blk-19	2522-2526	200

Limestone County

Atlantic-Deering Bros.	1-Thorton	Boyd		T.D. 2866	Dry

Shackelford County

Texas Cons	1-Reynolds	T&P	Sec-24 Blk-11	T.D. 1410	Dry
Tannehill	9-Mathews	ET	Sec-58	T.D. 1192	Dry
Roeser-Pendleton	13A60-Cook	ET	Sec-61	T.D. 1375	Dry
Roeser-Pendleton	79A60-Cook	ET	Sec-60	T.D. 1200	Dry
Cranfill-Reynolds	1-Davis	TP	Sec-33 Blk-13	T.D. 1820	Dry
Tannehill et al	5-Mathews	ET	Sec-33	1153-1155	75
Roeser-Pendleton	17A61-Cook	ET	Sec-61	1328-1358	75
Roeser-Pendleton	1A83-Cook	ET	Sec-83	1374-1375	80
Roeser-Pendleton	38C60-Cook	ET	Sec-60	1189-1193	40
Roeser-Pendleton	37C60-Cook	ET	Sec-60	1184-1185	50
Roeser-Pendleton	80A60-Cook	ET	Sec-60	1182-1183	40
Wentz	1-Mathews	ET	Sec-58	1025-1033	20
Roeser-Pendleton	35C60-Cook	ET	Sec-60	1163-1181	50
Roeser-Pendleton	36C60-Cook	ET	Sec-60	1151-1194	75
Roeser-Pendleton	33C60-Cook	ET	Sec-60	1167-1190	60
Roeser-Pendleton	7A62-Cook	ET	Sec-62	1324-1339	80
Roeser-Pendleton	15A61-Cook	ET	Sec-61	1329-1351	100
Roeser-Pendleton	14A61-Cook	ET	Sec-61	1316-1317	80
Roesr-Pendleton	12A61-Cook	ET	Sec-61	1350-1355	100
Roeser-Pendleton	78A60-Cook	ET	Sec-60	1156-1179	50
Roeser-Pendleton	77A60-Cook	ET	Sec-60	1178-1187	25
Texas	2-Sedwick	ET		551-552	10

Smith County

Gulf Prod	3-McCammond	Moore		T.D. 4219	Dry

Stephens County

Corzelius Bros. etal.	1-Christey	Poer	Sec-48	T.D. 4062	Dry
McNallan et al	1-Rosenguest	LAL	Sec-2	3070-3130	28

Throckmorton County

Stock et al	1-Kelly	Comanche Ind. Res.	Sec-31	T.D. 960	Dry
Holden	1-Walker	McCoy		T.D. 805	Dry
Humble	1-Latham	TE&L	Sec-986	T.D. 1868	Dry

NORTH TEXAS

Archer County

Company	Well Farm	Survey	Sec. and Blk.	Depth	Init. Prod.
Amer. et al	1-Cernosek	TE&L	Sec-2409	1433-1443	42
Consolidated	2-Neimeyer	TE&L	Sec-2415	1427-1439	95
Gilliland	6-Neimeyer	TE&L	Sec-2415	1401-1412	250
Madden et al	6-Richardson	SAR		1303-1318	62
Magnolia	16-Richardson	SAR	Blk-15	1352-1366	55
Payne-Eddleman	4-Parish	SP	Sec-2 Abst-1004	1574-1489	12
Tackett	8-Prideaux	Rohus	Abst-1126	648-666	10
Texas	18-Richardson	SAR	Blk-7	1293-1311	31
United Prod. et al.	1-Richardson	TE&L	Sec-2424	T.D. 1481	Dry

Clay County

Jeffers et al	1-Worham	Byers Bros.	Blk-103	T.D. 2283	Dry

Montague County

Superior Prod	1-Miller	Wells	Abst-844 Blk-58	T.D. 2293	Dry
Continental	2-James	Donoho	Abst-178	736-797	3.8M

Wilbarger County

Phillips	2-Waggoner	H&TC	Sec-5 Blk-5	1859-1894	219
Hamilton et al	6-Waggoner	H&TC	Sec-5 Blk-5	1846-1885	146
Fain-McGaha	14-Waggoner	H&TC	Sec-24 Blk-4	2446-2448	450
Baker et al	6-Waggoner	Purnell		1880-1890	105
Barkley-Meadows	6-Waggoner	H&TC	Sec-5 Blk-5	1857-1890	125
Beasley	1-Waggoner	H&TC	Sec-18 Blk-4	2408-2417	175
Consolidated	14-Waggoner	H&TC	Sec-5 Blk-5	1861-1879	75
Fain-McGaha	1-Waggoner	SP	Sec-1	T.D. 1935	Dry
Cochran et al	1-Waggoner	H&TC	Sec-8 Blk-17	T.D. 2507	Dry
Texas	358-Waggoner	H&TC	Sec-33 Blk-4	T.D. 2567	Dry
Waggoner	7-Waggoner	H&TC	Sec-24 Blk-4	T.D. 2409	Dry

Young County

Jacobs	1-Sayers	Edmonds	Abst-91	T.D. 4164	Dry
Amerada	1-Wilkerson	TE&L	Sec-724	T.D. 806	Dry
Croston et al	1-Knox	Scott		T.D. 802	Dry
Whatley et al	1-Benson	TE&L	Sec-1478	T.D. 1000	Dry
Mook Tex	9-Davis	TE&L	Sec-1487	T.D. 568	Dry
Morris-Smith	1-Riley	TE&L	Sec-1915	T.D. 610	Dry
Albright et al	1-Jordan	TE&L	Sec-1903	T.D. 754	Dry
Four Oil Co	1-Pringle	TE&L	Sec-216	T.D. 984	Dry
Texas-Pacific	5-Doembe	TE&L	Sec-1211	3373-3390	40
Lindsay Drlg	3-Craig	Ross	Abst-246	2085-2100	25
Paull-Landreth Prod.	1-Thompson	TE&L	Sec-2692	2060-2100	130
Schermerhorn et al.	3-Thompson	TE&L	Sec-2692	2098-2115	100
Gwynn	3-Kunkel	BBB&C	Blk-4	1145-1147	100
Kleiner et al	5-Davis	TE&L	Sec-1487	551-559	60
Kleiner et al	26-Langston	TE&L	Sec-1490	533-555	100
Pennell et al	6-Johnson	Sergeant	Abst-253	509-522	5
Rathke-Panhandle	6-Prideaux	Rohus	Abst-240	647-665	4
Shappell	5-Garrett	TE&L	Sec-1487	557-559	11

PANHANDLE

Gray County

Operators	8-Jackson	H&GN	Sec-88 Blk-B-2	2962-3000	212
Dunlap	1-Morse	H&GN	Sec-2 Blk-26	2507-2632	285
Texas	2-Davis	ACH&B	Sec-8 Blk-1	2771-2775	2650
Texas	1-Laugham	H&GN	Sec-1 Blk-B-2	2650-2810	118
McIlroy et al	1-Bull	H&GN	Sec-3 Blk-B-2	2756-2830	135
Texas	1-Show	ACHTB	Sec-5 Blk-1	2545-2560	40M
Parker et al	1-Parker	Lynch		T.D. 2865	Dry
Baldridge et al	1-Chapman	Lynch	Sec-9	T.D. 2889	Dry

Hutchinson County

Phillips	3-Sanford	H&TC	Sec-78 Blk-46	2930-2937	150
Huffman	1-Sanford	H&TC	Sec-78 Blk-46	2950-2961	175

Wheeler County

Wishkamper	1-Schlegel	H&GN	Sec-80 Blk-23	1575-1731	4M
Upham	1-Stuckey	H&GN	Sec-92 Blk-17	1980-2050	14M

WEST TEXAS

Culberson County

Deep Rock et al.	1-Bettis	T&P	Sec-28 Blk-59	T.D. 1720	Dry

Fisher County

Cranfill-Reynolds	1-Willingham	BBB&C	Sec-207 Blk-1	3119-3123	173

Howard County

F. H. E	3-Roberts	W&NW	Sec-137 Blk-29	2391-2600	514
Magnolia	9-Roberts	W&NW	Sec-136 Blk-29	2992-3000	1695
Marland	2-Clay	W&NW	Sec-138 Blk-29	1758-1763	58 (12 Hrs.)
Hicks	1-Reed	T&P	Sec-12 Blk-31	T.D. 4012	Dry

Pecos County

Amerada	1-Johnson	T&ST. L.	Sec-20 Blk-140	T.D. 1652	Dry
Mid-Kans.-Trans.	5-Yates	TC	Sec-32, Blk-194	1630-1665	1082 (1 Hr.)
Mid-Kans.-Trans.	4-Yates	TC	Sec-32 Blk-194	1360-1637	3371 (7 Hr.)

Runnells County

Pure	3-Gusicke Bros.	Smith	Blk-228	T.D. 3150	Dry

Winkler County

Southern Crude	T88J2-Hendricks	PSL	Sec-30 Blk-B-5	2905-2910	209
Pure	6-Hendricks	PSL	Sec-45 B k-26	2581-2588	15000
Roxana-Texas	9-Hendricks	PSL	Sec-29 Blk-B-5	2962-2998	400
Gulf Prod	6-Hendricks	PSL	Sec-34 Blk-B-5	3030-3010	607 (1 Hr.)
Texon	5-Hendricks	PSL	Sec-45 Blk-26	2850-3027	500
Southern Crude	T88U4-Hendricks	PSL	Sec-41 Blk-26	2845-2955	103 (1 Hr.)
Southern Crude	T88M23-Hendricks	PSL	Sec-33 Blk-26	2815-2820	110

Completions in North Louisiana and Arkansas, Week Ended October 25, 1928

Louisiana—Bossier Parish

Company	Well	Location	Depth	Yield
Ark. Nat. Gas Corp.	Van Hoose A-7	31-16-11	2445	13M gas
Palmer Corp	Caplis No. 11	26-16-12	1809	3M gas

Morehouse Parish

Southern Car. Co.	Tensas Delta No. 6	10-20-4E	2152	2M gas

Ouachita Parish

Magnolia Pet. Co.	Millsaps No. 2	36-20-4E	2150	20M gas

Richland Parish

Magnolia Pet. Co.	J. Sartor No. 1	16-16-6E	2445	58M gas

Grant Parish

Bailey & Beville	Swope No. 3	17-9-1E	1598	salt water, abd.

Arkansas—Nevada County

Company	Well	Location	Depth	Yield
Humble O. & R. Co.	Grove A-5	1-14-21	1117	50 bbls.

Union County—Rainbow City

O. W. Estes	Rowland No. 5	14-17-14	3302	dry, aband.
Skelly Oil Co	J. M. Gregory No. 1	15-17-14	2835	10 bbls.
W. F. Simrall et al.	Finley No. 1	12-17-14	3251	salt water, abd.
Sun Co.	Schmidt No. 3	16-17-14	3300	dry, aband.
Magnolia Pet. Co.	Carroll No. 5	1-17-14	3018	30 bbls.
Oil Well Corp.	Kelly A-1	9-17-14	2790	40M gas
Root Refineries	E. F. Gregory No. 2	10-17-14	2744	salt water, abd.

Smackover

Joe Marr et al.	Sloan No. 1	14-17-15	3392	salt water, abd.

Union County—Hillsboro

E. M. Jones et al.	Stegall B-2	10-18-14	2265	salt water, abd.

Completions in Oklahoma and Kansas, Week Ended October 27, 1928

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	1	NEc NW 4-2-3 W	4111-4125	45
Magnolia	5	NE NW NE 23-1-3 W	2590-2606	185
Westheimer	5	NWc 18-1-3 W	2944-2952	45

Cotton County

Bennett	1	NEc SW 30-1-9 W	T.D. 2307	Dry

Creek County

Flynn et al	1	SE NE NE 17-14-8 E	1047-1090	8M
Skelly	17	SEc NE SE SW 15-14-8 E	3877-3908	120
Roxana	2	NWc 15-15-8 E	3804-3831	60
Magnolia	31	SWc SE NW 7-18-7 E	2530-2552	5
Roxaline	1	NEc 33-17-12 E	1782-1789	2M
Magnolia	3	C NW SE 35-18-7 E	T.D. 3700	Dry

Grady County

Magnolia	3	SE NE NE 35-5-8 W	2122-2369	31M

Hughes County

Slick	1	NW NE NW 32-6-8 E	T.D. 4670	Dry

Jefferson County

Bridwell et al	1	SEc 31-6-5 W	T.D. 2105	Dry
Amerada	1	NW SE SW 28-5-8 W	T.D. 4516	Dry
Gypsy	6	SEc NW SE SW 17-7-6 W	773 777	15
Bridwell	7	C W½ SW 24-6-6 W	1723-1726	44

Kay County

Northern Counties	1	C NW SE 19-27-1 W	2432-2433	4M

Kiowa County

Alexander et al	1	SWc NE 18-6-16 W	428-439	30
Alexander et al	2	CNL NE NE 18-6-16 W	T.D. 502	Dry

Marshall County

Smith	6	NWc SW SW NE 24-5-5 E	663-672	30

Muskogee County

Durham-Smith	1	C SE SW 18-13-19 E	732-768	8M
Tillman	2	SEc 2-14-18 E	764-791	.2M

Okfuskee County

Devonian	3	NE SW NE 11-10-11 E	2018-2039	55
Atlantic	3	SE NE SE 11-10-11 E	2030-2040	300

Okmulgee County

Moffett-Buckles	6	C S½ NW 16-11-12 E	1246-1293	.5M
Wallace	11	NWc SE 14-14-14 E	1010-1022	25
Flannigan	1	SEc 25-16-11 E	1710-1725	35
Smith	1	SEc NE 17-11-12 E	T.D. 702	Dry
Iron Mountain	12	CNE NW 24-13-14 E	T.D. 1989	Dry
Blake-Keeney	2	SEc NW NE 2-15-14 E	T.D. 724	Dry
Winemiller	1	NEc SW SW 22-16-11 E	T.D. 3009	Dry

Osage County

Presbury et al	1	NWc 15-23-8 E	T.D. 1125	Dry
Osage Gas Prod.	392	NW NE NW 32-24-12 E	T.D. 1607	Dry
Marland et al	10	SE NE NW 15-24-8 E	T.D. 585	Dry
Devonian	1	NE SE SE 10-20-11 E	2285-2305	35
I. T. I. O.	400	SEc SW SW NW 5-24-9 E	1926-1934	2.75M
Gray	2	CSL N½ S½ SE 34-24-8 E	2607-2708	560

Payne County

Empire	1	NWc NE 3-18-6 E	3440-3486	20
Mote et al	1	SEc SW 32-18-5 E	3686-3700	45

Pawnee County

Prod. Consolidated	12	NWc NE SW 6-20-8 E	2538-2561	15

Pontotoc County

Westheimer-Daube	4	SE SW NE 19-5-8 E	2570-2616	400
Ramsey	1	NW SW NE 19-5-8 E	2570-2632	747
Louisiana	15	SE NW NE 19-5-8 E	2600-2650	725
Shaffer	9	NE NW NW 16-5-8 E	2425-2560	50
McCullough	1	SWc 4-4-7 E	T.D. 3775	Dry
Belchie-Laskey	1	C NW SE 32-5-7 E	T.D. 2200	Dry

Pottawatomie County

Roxana	1	SWc NE 30-7-5 E	4107-4253	76
Mid-Kansas	1	NWc 30-7-5 E	4434-4444	415
Independent	1	NEc SW 30-7-5 E	4223-5285	1280
Barnsdall	1	NW SW NE 30-7-5 E	4337-4352	1335
Magnolia	3	NW SW SW 20-7-5 E	4255-4280	2812
Magnolia	1	NWc SW 20-7-5 E	4273-4314	2808
Magnolia	1	SWc NW 20-7-5 E	4167-4175	741
Magnolia	2	SE NE SW 19-7-5 E	4203-4221	676
Independent	7	NE SE SE 19-7-5 E	4078-4107	2705
Gypsy	1	NEc SE 26-7-4 E	4233-4276	1420
Mid-Kans	2	NW SW NW 25-7-4 E	4275-4292	2110

Seminole County

Mid-Continent	1	SE NE NE 14-5-7 E	2620-2685	OWD 30M
Mid-Continent	1	NWc NE 5-7-7 E	4425-4427	1650
Sinclair-Kingwood	1	NW SW SW 24-7-6 E	4469-4475	685
Pure	9	SW SE NE 23-7-6 E	4565-4570	384
Pure	8	SE NE NE 23-7-6 E	4332-4343	985
Independent	6	SE NW SE 14-7-6 E	4430-4443	605
Carter	2	NW SW SW 12-7-6 E	4347-4350	55
Pure	4	SE SW NE 11-7-6 E	4333-4361	779
Blackwell	2	SE NW SE 11-7-6 E	4314-4318	330
Roxana	1	SW SE SW 1-5-7 E	T.D. 3378	Dry
Slick	10	NE NW SE 15-7-6 E	T.D. 2545	Dry
Slick	7	SW SE NE 15-7-6 E	T.D. 4508	Dry
Slick	6	NW NE SE 15-7-6 E	T.D. 1556	Dry

Stephens County

Pace et al	1	NEc SE SE 24-2-8 W	T.D. 2305	Dry
Magnolia	3	NW NE NW 24-1-4 W	2953-2964	118
Magnolia	1	SEc NW 12-1-4 W	3079-3250	90

Wagoner County

Sheridan	1	SEc NW 6-19-15 E	1102-1103	2M
Carlson et al	4	C E½ SE 12-16-15 E	T.D. 1050	Dry

KANSAS

Barton County

Everett-Wiley	1	NWc SW 12-20-13 W	T.D. 3940	Dry

Butler County

Landon	1	SW NW NE 6-27-6 E	T.D. 3200	Dry
Garden et al	5	CWL SW NE 6-27-6 E	T.D. 2746	Dry
Empire et al	4	NE SW SW 6-27-6 E	T.D. 2764	Dry
Connell et al	1	NEc NW 22-24-3 E	T.D. 3203	Dry
Davis et al	8	NW SE SW 3-27-6 E	3146-3167	120
Empire	3	SWc NE 27-27-5 E	2725-2747	300
Wichita Pet	5	SW NE NE 10-26-4 E	2409-2423	150

Cowley County

Roxana	1	NE NW SW 18-35-3 E	T.D. 2220	OWD Dry
Shawver et al	1	NEc 20-30-4 E	T.D. 2890	Dry

Elk County

Jones et al	2	SEc 5-31-10 E	1584-1630	30

Marion County

Johnson	2	SE NW SE 14-17-4 E	T.D. 2349	Dry

McPherson County

Merriman-Reeves et al.	2	SE SW SW 29-18-2 W	2931-2951	13M
Mid-Kans	1	C NE SW 31-18-2 W	2962-2979	280

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended October 27, 1928

	Oct. 27 Loc.	Rigs	Drg.	S.D.	Total	Week Ended Loc.	Rigs	Drg.	S.D.	Total	Oct. 20
OKLAHOMA											
Osage	8	15	23	2	48	7	10	22	..	39	
Bristow-Cushing	6	12	28	6	52	4	7	35	6	52	
North Oklahoma	6	4	45	25	80	8	2	41	25	76	
South Oklahoma	11	8	75	28	122	10	10	76	26	122	
Muskogee	..	5	50	25	80	..	6	39	30	75	
Okmulgee-Bristow	7	27	80	23	137	8	31	73	20	132	
Seminole Dist	18	82	308	24	432	22	88	297	37	444	
Total Oklahoma	56	153	609	133	951	59	154	583	144	940	
KANSAS	..	59*	214	51	324	..	62*	211	54	327	

	Oct. 27 Loc.	Rigs	Drg.	S.D.	Total	Week Ended Loc.	Rigs	Drg.	S.D.	Total	Oct. 20
TEXAS											
Central	55	24	223	140	442	60	23	221	145	449	
Panhandle	11	26	94	49	180	11	23	94	51	179	
N. Central	26	29	82	79	216	30	30	120	44	224	
West	62	35	204	149	450	63	39	198	166	466	
Total Texas	154	114	603	417	1,288	164	115	633	406	1,318	
New Mexico	3	3	27	18	51	4	4	28	15	51	
GRAND TOTAL	213	329	1,453	619	2,614	227	335	1,455	619	2,636	

*Loc. and rigs combined.

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended October 27, 1928

OKLAHOMA

Beckham County

Company	Well No. Farm	Location
Sayre	1-Davis	SWc NW 24-9-23 W OWD

Carter County

Sinclair	5-Daugherty	SWc SE NE 29-2-3 W
Magnolia	1-Tipton	SE NE NW 4-2-3 W

Coal County

McGraw	1-Commerce Trust Co.	SWc 12-1-8 E

Comanche County

Turner-Long	1-Curtis	NEc SE 25-2-10 W

Creek County

Banks	2-Crider	CSL SE NW 31-17-12 E OWD
Ice et al	1-Johnson	NWc SE SW 28-18-11 E
Magnolia	5-Emarthla	NEc SW 5-16-8 E
Shaffer	1-Jones	SWc NE 26-18-7 E
Shaffer	2-Jones	SEc NW 26-18-7 E
Magnolia	33-Coker	CSL NW 16-18-7 E
Shaffer	1-Kelly	NWc NE 7-19-7 E
Silurian-Houston	1-Anthis	SWc SE 6-19-7 E
Gayer	1-Deere	SEc SW 6-19-7 E

Grady County

Okla. Gas Utilities	2-Taylor	CSL N½ NW SE 2-4-8 W

Hughes County

Magnolia	1-Baker	SEc NE 5-9-11 E

Kay County

Ingram-Wilson	1-Booley	NWc SE SW SW 14-27-1 E
Ewing et al	1-Redick	SWc SE NW 27-28-2 E

Kiowa County

Russell-Sloan	1-Rushton	NEc SW SE 6-5-14 W
Conner-Son	1-Greis	SEc NW NE 26-7-16 W

Logan County

Gypsy	1-Jewell	NWc 22-18-4 W

Marshall County

Company	Well No. Farm	Location
Smith	7-Null	SWc NW SW NE 24-5-5 E

Muskogee County

Kimsey et al	1-Herrod	NWc SE NW SE 24-15-17 E
Jolly et al	1-Durant	SEc SW SW NE 30-15-15 E

Noble County

Reed	1-Mathison	SEc SW SE SE 23-24-2 W

Okfuskee County

Jarvis-Holm et al	1-Fier	SEc SW 16-10-11 E
Umbrum	5-Simmer	CSL N½ NE SE 11-10-11 E
Atlantic Prod.	4-Simmer	CNL S½ NE SE 11-10-11 E
Moffitt et al	1-Roger	NEc NW NW 10-11-12 E
Darby et al	1-Smith	NEc SW 33-12-10 E

Okmulgee County

Troutt Drlg	10-Doyle	CNW NW 28-13-14 E
McInturff	2-Myers	CNL NW NW 8-13-14 E
Rebold	10-Haskins	CNL NW SE 22-13-12 E
Hersha-Delaney	1-Unallotted	SWc NW 35-16-14 E OWD

Osage County

Plains Pet	1	SWc SE SW SW 32-21-11 E
Moore	14	SEc SW SW SW 9-21-9 E
Moore	13	NWc SW SW SW 9-21-9 E
Branstetter-Barnsdall	3	SW NW SW 23-22-11 E
Silurian	52	SWc NE SE NE 18-23-12 E
Gypsy-Marland	1	NE NW NE 16-23-7 E
Winona	25	SWc SE NE SE 28-24-10 E
Peters	2	SWc 28-24-9 E
Gray	3	CSL SE 34-24-8 E
McCune et al	11	NWc NE SE NW 15-24-8 E
Marland-Gypsy	2	SWc NW 22-24-7 E

(*Continued on Page 56*)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended October 27, 1928

(*Continued from Page 55*)

Company	Well No. Farm	Location
Marland-Gypsy...	1.....	SEc NW 22-24-7 E
Marland-Gypsy...	1.....	SWc NE 22-24-7 E
Oliphant.....	1.....	SWc 2-25-8 E OWD
Empire.....	2.....	NE SW NE 12-25-5 E
Payne County		
Pure.....	3-Axtell	NWc SW 8-18-4 E
Pontotoc County		
Homaokla.....	2-Adams	NEc SE 19-5-8 E OWD
Homaokla.....	5-McCall	SEc NW 17-5-8 E OWD
American.....	2-Brown	SW NE SE 27-5-6 E
La Salle.....	2-Mole	NEc 31-5-5 E
Pottawatomie County		
Magnolia.....	2-Cherry	SW SE NE 26-7-4 E
Slick-White Eagle.	1-Williams	NWc SE 20-8-5 E
Sinclair.....	3-Bellars	NWc NE 19-8-5 E
Seminole County		
Sunray.....	8-Culley	SEc NE SE NE 18-5-8 E
Sinclair.....	1-Davis	NW NE SW 7-6-8 E
Carter.....	1-Walker	NW NE NW 24-7-6 E
Roxana.....	1-Wolf	NE SE SE 23-7-6 E
Carter.....	3-Harjo	NE NW SW 13-7-6 E
Pine.....	8-Hoyecha	NW SE SE 26-8-6 E
Minnehoma.....	1-Neal	NE NW NW 7-8-6 E
Kistler.....	.....	NEc NW 7-8-6 E
Gypsy.....	1-Mimey	NWc NE 14-6-5 E
Barnsdall.....	1-Coker	SEc SW 11-8-5 E
Marland.....	1-Strothers	NW SE NE 5-10-7 E
Stephens County		
Harris et al.....	1-McCullom	NW SW NE 24-1-4 W
Saterwood-Hart...	1-Hart	NWc 9-1-8 W
Medlin et al.....	4-Simpson	NWc NE SW SE 34-1-8 W
Magnolia.....	18-Kagay	SEc SW 34-1-8 W
Randle-Muse.....	1-Dare	SEc SW 1-2-8 W
Pace et al.....	8-Bristowe	NEc SW NE NW 18-2-7 W
Wagoner County		
Neeley-Cody.....	1-Posey	SWc 7-17-18 E
Rowland.....	1-Sugar	NWc SW 17-17-16 E

KANSAS

Company	Well No. Farm	Location
Russell County		
Keys Pet.....	11-Mermis	NE SW NE 32-13-15 W
Keys Pet.....	7-Mermis	SW NE NE 32-13-15 W
Vickers.....	1-Lukeren	SWc SE 11-9-16 W OWD
Sedgwick County		
Reynolds-Hayes..	1-Roll	SW NW NE 7-26-1 E
Marland.....	1-Goodrich	SW NE SW 16-23-1 E
Connell et al.....	1-Cross	NEc 27-25-1 W
Sumner County		
Marland.....	1-Peters	SWc 30-34-2 E
Washoma.....	2-Bussard	CNL NE SW 36-31-2 E
Pryor-Lockhart-Slick	1-Russ	NEc 35-31-2 E

NORTH EAST CENTRAL

Company	Well No. Farm	Location	Survey
Anderson County			
Humble.....	1-Todd	Clark	
Brown County			
Clark.....	2-Kessee	Blk-42	Lewis
Pandem et al.....	1-Mullen	Sec-32	H&TB
Phillips.....	1-Burk	Blk-648	Bell
Gilman et al.....	6-Hickman	Blk-783	Benson
Cranfill-Reynolds.	14-Eubanks	Blk-141	Mitchell
Cranfill-Reynolds.	15-Eubanks	Blk-141	Mitchell
Hammon et al....	4-Lewis	Blk-624	Kenney
Crann.....	1-Hale	Blk-607	Cunnings
McLandon.....	1-Hale	Blk-607	Cunnings
Bradstreet et al...	14-Stout	Blk-155	Wm. Smith
Texas.....	3-Byler	Blk-43	T&NO
Midwest Expl....	4-George		Cross
Clark et al.....	3-Keese		Lewis
Clark et al.....	3-Keese		Kern
Callahan County			
Flannigan et al...	1-Eubanks	Sec-48	Comal Sch
Starr et al.....	1-Jones	Sec-89	BBB&C
Childs et al.....	2-Foster	Sec-43	Comal Sch
Cherokee County			
Humble.....	3-Weinberg	Blk-7	Trimble
Coleman County			
Byrd et al.....	3-Moody	Sec-12 Blk-665	Scott
Chapman.....	1-Small	Sec-69, Blk-1	GH&H
Meredith et al....	1-Bunney	Blk-328	Tompkins
Chapman.....	1-Fuller	Sec-12 Blk-751	Martinez
Eastland County			
Davis et al.....	1-Horn	Sec-67	McLennon Sch.
Goghassian.....	1-Busbee	Sec-2	Sapp
Davis et al.....	1-Butler	Sec-28 Blk-2	H&TC
Free.....	1-Lauderdale	Abst-1881	Smith
Mook-Tex.....	5-Casey		Van Norman
Tex-Pac.....	2-Fee		Delano
Jack County			
Panhandle.....	2-Daugherty	Abst-256	Hughson
Rathlatt.....	1-Maxet	Abst-1736	SP
Jones County			
Cosden.....	2-Bickley	Sec-50 Blk-18	T&P
Phillips.....	1-Windham	Sec-17 Blk-19	T&P
Roberts et al.....	2-Smith	Sec-51 Blk-18	T&P
Roberts et al.....	3-Smith	Sec-61 Blk-18	T&P
Sinclair.....	2-Bickley	Sec-50 Blk-18	T&P
Palo Pinto County			
Gordon et al.....	2-McDonald	Sec-38 Blk-1	T&P
Smith County			
Amerada.....	1-Christian		Florez
Shackleford County			
Collett et al.....	1-Neisell	Sec-114	ET
Wentz.....	1-Matthews	Sec-58	ET
Harris.....	2-Matthews	Sec-57	ET
Roeser-Pendleton.	60-Cook	Sec-60	ET
Roeser-Pend.....	60-Cook	Sec-60	ET
Stephens County			
Thomas et al.....	1-Satterfield	Abst-2722	Satterfield
Hanlon.....	1-Grimes	Sec-3394	TE&L
Tex-Fidelity.....	1-Adams	Sec-53 Blk-6	TP
Tex-Pac.....	2-Hancock	Sec-7 Blk-b	T&NO
Phillips.....	1-Powell	Sec-9	BWL

NORTH TEXAS

Company	Well No. Farm	Location	Survey
Archer County			
Gilliland.....	1-Symank	Blk-11	Meade Pasture
Texas.....	8-Hayter	Sec-2409	TE&L
Payne et al.....	5-Parish	Sec-2	SP
Madden-Hunt....	9-Richardson	Blk-7	SAR
Texas.....	21-Richardson	Blk-6	SAR
Texas.....	22-Richardson	6	SAR
Amer.....	2-Cermosek	Sec-2409	TE&L
Freeman et al....	1-Hennig	Blk-30	Meade
Johnson et al.....	5-Wilson	Blk-26	Geraldine
Tackett.....	9-Prideaux	Abst-1126	Rohus
Montague County			
Continental.....	3-Jones	Abst-178	Donoho
Wichita County			
United Prod.....	1-Hodges	Abst-39	HT&B
Wilbarger County			
Waggoner.....	7-Waggoner	Sec-24 Blk-4	H&TC
Phillips.....	2-Waggoner	Sec-6 Blk-5	H&TC
Ross et al.....	1-Yarbrough	Sec-8 Blk-5	H&TC
Waggoner.....	1-Waggoner	Sec-50 Blk-4	H&TC
McMan.....	1-Waggoner	Sec-50 Blk-4	H&TC
Fain-McGaha....	20-Waggoner	Sec-24 Blk-4	H&TC
Fain-McGaha....	19-Waggoner	Sec-24 Blk-4	H&TC
Fain-McGaha....	1-Waggoner	Sec-18 Blk-4	H&TC
Hammond.....	1-Waggoner	Sec-16 Blk-4	H&TC
Texas.....	2-Wag.	Sec-24 Blk-4	H&TC
Texas.....	1-Wag.	Sec-24 Blk-4	H&TC
Young County			
Allday et al.....	2-Johnson	Blk-8 Abst-253	Sergeant
Kleiner et al.....	6-Davis	Sec-1487	TE&L
Gifford.....	2-Prideaux	Abst-240	Rohus
Stafford et al.....	1-Drum	Abst-1274	Wood
White.....	1-White	Sec-258	TEL
Pet. Prod.....	1-Barish	Sec-409	TEL
Wolfe.....	6-Lowe	Sec-59	TEL
Baller.....	10-Gregg	Abst-240	Rohus
Eckerty.....	1-Clark	Sec-209	TEL
Riggs et al.....	2-Sweet	Sec-1488	TEL
Magnolia.....	4-Johnson	Blk-13 Abst-253	Sergeant
Lynch et al.....	2-Johnson	Abst-253	Sergeant
Union of Nev.....	1-Wilson	Sec-162	TFL
Schermerhorn et al.	4-Thompson	Sec-2692	TEL
Paull et al.....	2-Thompson	Sec-2692	TEL

PANHANDLE

Company	Well No. Farm	Location	Survey
Carson County			
Anderson et al....	1-Cooper	Sec-5 Blk-9	I&GN
Ware et al.....	1-Fee	Sec-18 Blk-3	AB&M
Gray County			
Gulf Prod.....	3-Holmes	Sec-87 Blk-3	I&GN
Moore County			
Devonian.....	1-Sneed	.....	Robinson

WEST TEXAS

Company	Well No. Farm	Location	Survey
Crane County			
Simms-Atlantic...	2-Univ.	Sec-34 Blk-30	Univ.
Duffey.....	3-Cowden	Sec-18 Blk-X	CCSD
Crockett County			
Wheeler.....	1-State	Sec-71½	Oney
Fisher County			
Cranfill-Reynolds.	1-Sharp	Sec-207 Blk-1	BBB&C
Glasscock County			
Gulf Prod.....	3-Clay	Sec-155 Blk-29	W&NW
Howard County			
Magnolia.....	16-Roberts	Sec-136 Blk-29	W&NW
Louisiana.....	1-Settles	Sec-6 Blk-32	T&P
Merrick-Lamb....	6-Clay	Sec-126 Blk-29	W&NW
Pecos County			
Mid-Kans.-Trans..	11-Yates	Sec-60 Blk-1	I&GN
Roxana.....	3-Smith	Sec-24 Blk-194	GC&SF
Presidio County			
Eastland.....	1-Smith	Sec-17 Blk-354	GC&SF
Upton County			
Champlin.....	4-Lane	Sec-3	GC&SF
Val Verde County			
Prod. et al.....	1-Everett	Sec-40 Blk-DB	CCSD
Winkler County			
Southern Crude...	T88m27-Hendricks	Sec-33 Blk-26	PSL
Southern Crude...	T88j1-Hendricks	Sec-27 Blk-26	PSL
Southern Crude...	T88o2-Hendricks	Sec-28 Blk-26	PSL
Pure.....	9-Hendricks	Sec-45 Blk-26	PSL
Pure.....	10-Hendricks	Sec-45 Blk-26	PSL
Southern Crude...	T88t7-Hendricks	Sec-34 Blk-26	PSL
Barnsdall.....	1-Morton	Sec-26 Blk-B-12	PSL

Apparatus for Measuring Conditions At Bottom of the Hole

By K. C. Sclater* and B. R. Stephenson**

Presented before Petroleum Division, American Institute of Mechanical and Metallurgical Engineers, Tulsa, Oct. 18-19

FOUR types of apparatus devised for providing a simple, yet positive and reliable, means of obtaining data on physical conditions prevailing within a well at the bottom of the hole are described in the accompanying paper.

The four are: A thief for sampling fluids under pressure, a recording pressure bomb, maximum pressure bomb, and a diaphragm pressure gauge.

Results obtained in tests of bottom hole conditions with this apparatus, which is still in the experimental stage, are sufficient to stimulate further work along this line, the authors point out.

The need for more precise information regarding physical conditions at the bottom of oil wells is pointed out, and the conclusion drawn that it is feasible to develop suitable apparatus to secure reliable data on bottom hole measurements of pressure, temperature, gas-oil ratio and the composition and physical properties of the gas and oil in the well. Such data, systematically gathered and correlated, can be put to immediate practical use in the field.

RECENT progress in oil recovery methods has brought into prominence gas-energy relations in oil sands. The greater the effort made to utilize this gas-energy relationship to the best advantage in oil recovery, the greater becomes the need for more precise information concerning physical conditions as they actually exist in an oil well.

The intelligent use of gas-oil ratios when considering production efficiency has been the subject of much recent discussion. It has been stressed that the pressure, as well as the volume, of gas must be known when considering the efficiency of a producing well on an energy basis. When methods of production are compared on an energy basis it implies a knowledge of pressure, temperature and physical properties of the fluid at the bottom of the well.

In questions concerning gas lift and the pressure control of wells there is usually a wide variance of opinion among engineers when energy relations come up for discussion.

Perhaps this difference of opinion can be traced to erroneous assumptions made with regard to the physical conditions existing within the well. If erroneous assumptions are made it follows that the computations based on these assumptions will give results which also will be in error.

That erroneous assumptions are made is not to be wondered at because, when handling a fluid composed of gas and oil, we are dealing with a complexity of hydrocarbon components, each varying in physical and chemical properties. This means that the physical state of the gas and oil will depend, not only on temperature and pressure, but that it will be influenced also by the relative amounts of the various hydrocarbon components present. If water is present the problem becomes still more complicated.

From these considerations alone it would appear that we can well afford to give some thought to devising more positive methods or means for obtaining data on physical properties within the well rather than depend entirely on computations from casinghead data.

If these data would tell us definitely how the gas is associated with the oil, in what phase it exists, and what are the relative proportions present in the oil at the face of the oil sand, they would be a decided aid in the solution of all types of oil recovery problems.

Bottom-hole data have a wider range of usefulness than may at first appear. As used here, bottom-hole data refers specifically to positive measurements of pressure, temperature, gravity of oil, gas-oil ratios, and the physical and chemical nature of the fluid as it exists at the bottom, or any other designated point in a well, in contradistinction to well data computed from measurements made at the casinghead.

A complete set of bottom-hole data, obtained immediately the well is "drilled in," would form a basic reference to be used in all subsequent measurements. The type of information these data would furnish is fundamental in character, in that original conditions within the reservoir in the vicinity of the well, before depletion of the energy through the well begins, could be determined with a fair degree of accuracy. This information would also be a valuable reference when problems involving well operation and economical methods of oil recovery come up for solution.

Besides serving as a guide in deciding on the best method of producing a well, of equal, if not greater importance, is the fact that bottom-hole data obtained at subsequent intervals from selected wells in a field, together with good production records, would aid in determining with a greater degree of accuracy, the trend of decline of the field as a whole.

A valuable set of records showing the change in gas-energy relations in the oil sand would then be available for making closer determinations of rate of depletion and forecasting ultimate recovery.

Realizing the need for bottom-hole

*Chief production engineer, Marland Production Co.

**Chemist, formerly with Marland Production Co.

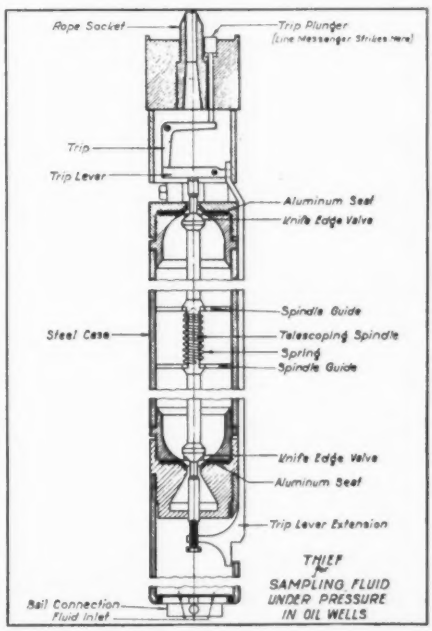

Figure 1—Thief for sampling fluid under pressure in oil wells

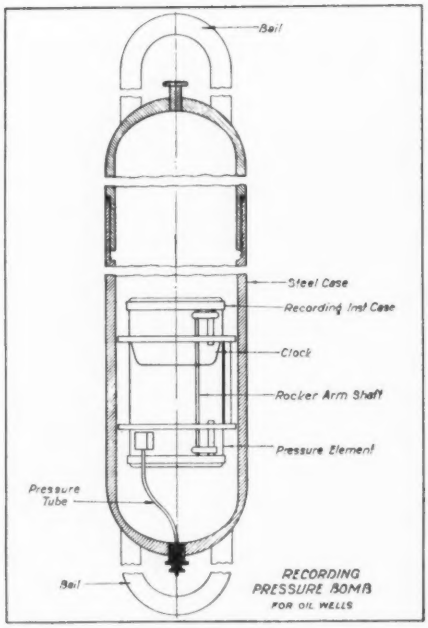

Figure 2—Recording pressure bomb for oil wells

data and their application to the solution of a wide range of oil recovery problems, some work of a preliminary nature was undertaken by the Marland Oil Co. on devising and developing for field use suitable apparatus which would provide a simple, positive and reliable means for obtaining bottom-hole data, as no equipment of this kind suitable for use in an oil well was available on the market.

The progress made to date on this problem has not advanced very far beyond the preliminary stage. Equipment has been designed and constructed and some field tests made. The results obtained in these tests, while they do not cover a wide range of conditions, are sufficient, in the interest of stimulating further work along this line, to justify inclusion in this paper.

Four pieces of apparatus have been developed for field use; namely, a thief for sampling fluids under pressure, a recording pressure bomb, a maximum pressure bomb and a diaphragm pressure gauge. The first three, the thief, recording pressure bomb and maximum pressure bomb are run together as a test string as shown in Figure 4 to obtain a complete set of bottom-hole data. Two pressure bombs are run in order to obtain check readings of maximum pressure. The maximum pressure bomb also serves as a sinker.

Thief for Sampling Fluids Under Pressure

Important details of the thief are shown in Figure 1. The steel case forming the main body of the thief is made from heavy 3-inch pipe. Each opening of the sampler, top and bottom, has on its inner edge a special renewable aluminum disk which forms a seat for the steel knife-edge valve. The success of obtaining a good sample under pressure is dependent mainly on a secure seating of the knife-edge valves, hence it is necessary to renew a set of disks for each run. The spindle of the lower knife-edge valve slides within the spindle of the upper knife-edge valve. A heavy steel spring is mounted on the knife-edge valve spindles. Both spindles have an outward extension to provide for the operation of the trip mechanism.

The trip mechanism consists of the trip plunger, trip, trip lever and trip lever extension, as shown. A maximum thermometer is placed in the space below the lower inlet to the sampler. A connection is also provided for attaching a pressure gauge and for drawing off the contents of the thief for analysis. The capacity of the thief is approximately 3½ liters.

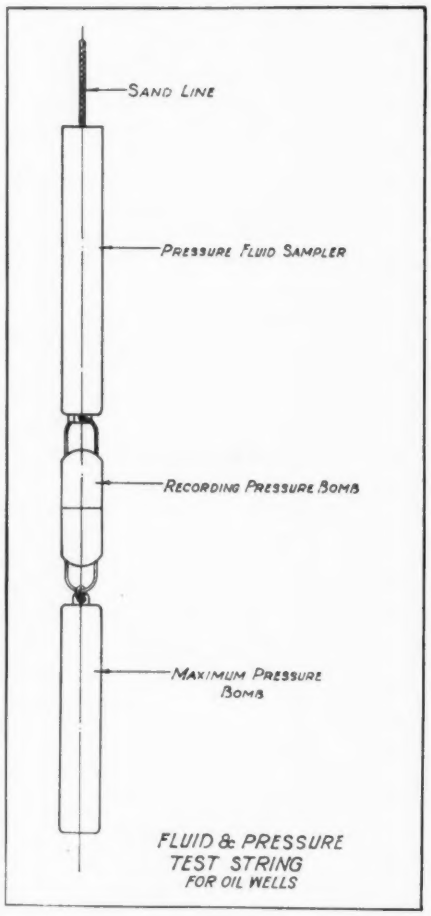

Figure 4—Fluid and pressure test string for oil wells

Before the thief is run in the well the spring is compressed and the trip set to hold the knife-edge valves off their seats. This permits passage of the fluids through the sampler as it is lowered into the well. The sampler is run on a sand line to the point in the well where the sample is to be taken and left there for 20 to 30 minutes or longer, depending upon whether or not it is desired to let the pressure build up in the well.

A messenger, consisting of a short length of small pipe, is then released at the casinghead and dispatched down on the sand line. The messenger strikes the trip plunger and releases the trip, allowing the knife-edge valves to seat. A sample of the fluid or fluids under the existing pressure is thus obtained. The thief is about 3½ inches in diameter by 5 feet long.

Recording Pressure Bomb

The recording pressure bomb consists essentially of a pressure element, clock and recording apparatus. These are enclosed in a steel gas-tight case, as shown in Figure 2. The pressure element is open to the well pressure through a pressure tube as shown, the latter being securely packed off where it passes through the wall of the steel case to insure against pressure building up inside the bomb.

This piece of apparatus is of most recent development and has proved the most successful for taking pressure measurements in a flowing well. A pressure element for any desired pressure may be installed. Similarly, a clock and recording movement for any desired speed may be installed. A circular chart about 2¼ inches in diameter is used. The bomb is about 4 inches in diameter by 3 feet long.

Maximum Pressure Bomb

Figure 3 is a diagrammatic sketch of a simple maximum pressure bomb. Varied types of construction have been, and are now in use. The maximum pressure bomb is simply a gas-tight steel case, enclosing one or more maximum reading pressure gauges. It is common to use a gauge, or gauges, with smoked dials to record the maximum reading. More success has been had with this type than with types using a maximum hand or pointer. For obtaining bottom-hole pressures only, the maximum pressure bomb,

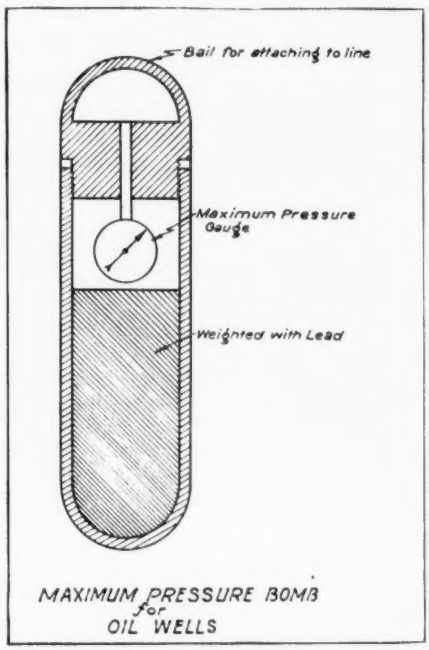

Figure 3—Maximum pressure bomb for oil wells

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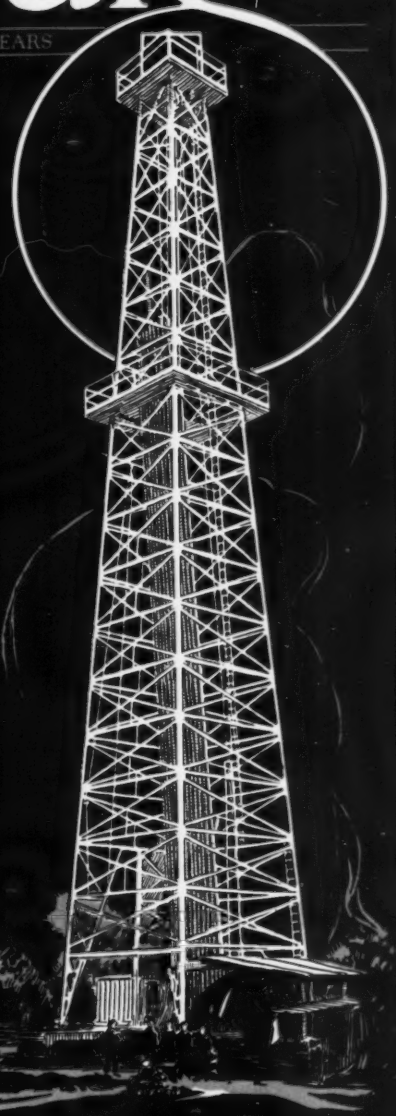

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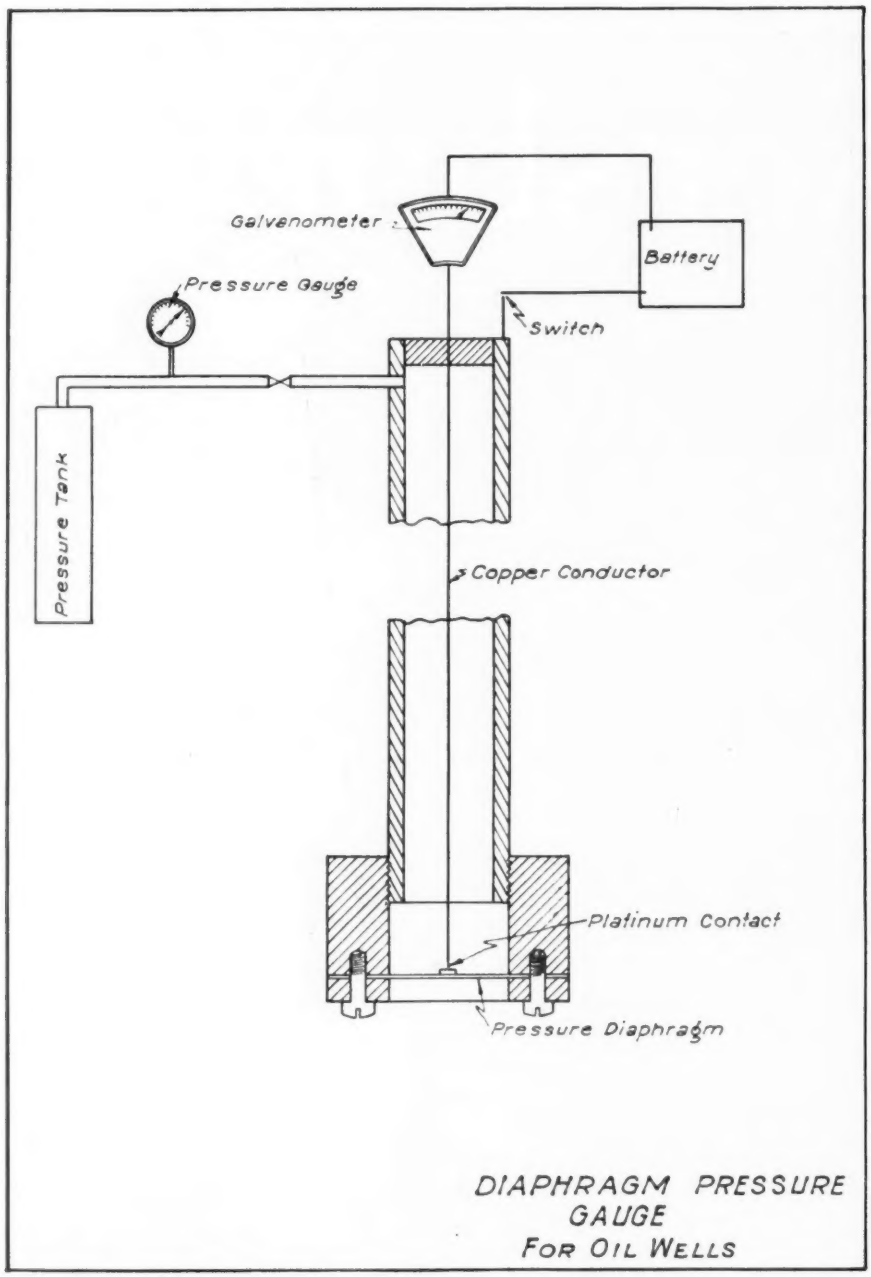

Figure 5—Diaphragm pressure gauge for oil wells

run alone, has proved very successful. The dimensions of bomb used in test string (see Figure 4) is 3½ inches in diameter, by 4 feet long.

Diagram Pressure Gauge

Figure 5 is a diagrammatic sketch of the diaphragm pressure gauge. It is simply a metal diaphragm, the top side of which is open to a pressure chamber and tank and the bottom to the well pressure. The gauge is designed to run in a well, either through tubing or casing. It is run on small size (⅜-inch) pipe. This pipe forms the pressure chamber and is connected directly to the pressure tank as shown in Figure 5.

When the diaphragm is lowered to the desired point in the well, gas or air from the pressure tank is fed into the pressure chamber until the pressure on the upper side or the diaphragm balances the well pressure on the under side of the diaphragm. When balance is reached the contact between conductor and diaphragm (see Figure 5) is broken, and a reading on the pressure gauge is taken at the instant the galvanometer needle is deflected.

Pressure readings are corrected for the weight of the gas column in pressure chamber. When installed, the small pipe which forms the pressure chamber is packed off at the casinghead.

The purpose of this gauge is somewhat different from the other pressure gauges described. It was designed primarily for obtaining pressures at any point in a well while the well is producing. The pressure on the under side of the diaphragm is indicated at the surface. Inherent defects arising from the design have not yet been fully overcome, consequently consistently successful results have not attended its use.

The design and development of a suitable type gauge to give continuous readings, observable at the casinghead, of pressures existing at the bottom, or any desired point in a well while the well is in operation, deserves the attention of every one interested in more efficient methods of handling producing wells.

Based upon what has already been accomplished in experimental field work in developing a gauge of this type, there is every reason to believe that the day is not far distant when such a gauge will be available. There are instruments for taking precise measurements being used in other lines of industry which, with some modification, might be adapted for use in well measurements.

Difficulties Encountered in Bottom-Hole Measurements

As might be expected, difficulties encountered in obtaining bottom-hole data are due mainly to the limitations imposed by well conditions. These conditions are mechanical and physical. The size of well casing, or tubing, prescribes the allowable cross sectional dimensions of the apparatus. Probably this one factor more than any other has retarded development of apparatus for making measurements in wells.

No limitations, however, are put on longitudinal dimensions and this gives some leeway in design. If facilities in the line of good surface well equipment are not available, minor difficulties in handling the apparatus arise.

Too great a variation in speed, or too sudden braking, when running in or pulling out test apparatus, will result in damage to thermometers, gauges and recording equipment. Thermometer threads may be knocked down or gauge hands jerked out of position or off the pin entirely. If a well is flowing under high pressure it necessitates the use of a lubricator to enter test apparatus in the well. The velocity of flow may be so great that the test apparatus can be lowered only by shutting the well in. Surging or heading conditions in the well may result in false readings of pressure, temperature and gas-oil ratio.

Bottom-Hole Data—Uses and Applications

Earlier in this discussion attention was called to the fundamental character of bottom-hole data obtained immediately a well is "drilled in." For instance, if it is the discovery well in a field, pressure, temperature and gas-oil ratio measurements taken at the face of the oil sand, with the well closed in, will closely approximate original conditions within the reservoir.

In the absence of definite informa-

tion pertaining to bottom-hole conditions, we are confronted at the outset with the problem of determining, by casinghead data only, what are the physical conditions existing at the base of a 3000 or 4000-foot well.

Great progress has been made in the interpretation of underground conditions through a close study and analysis of casinghead data, but even so, our conceptions of the existing physical conditions do not always accord with facts.

In a flowing well, do we know how a change in casinghead pressure affects the bottom-hole pressure? How the pressure varies in the fluid column in the well? What is the change in temperature and gravity of the oil, gas and gas-oil ratio from the face of the oil sand to the casinghead? An immediate and definite answer to these questions is very pertinent in deciding questions of well operation. It is not the purpose of this paper to go into a detailed discussion of these data, but rather to outline briefly the possibilities of their use and application to oil field problems.

Today, the research engineer engaged in problems pertaining to increased recovery from oil sands is looking to the engineer engaged in active oil-field operations for information which will assist him in substantiating conclusions and correlating and comparing laboratory results with those obtained under actual field operating conditions. Cooperation of this kind between the laboratory and the field will make for real progress and help eliminate the guesswork in seeking for a solution of oil recovery problems.

The curves (Figure 6) show the relation between bottom-hole and casinghead pressure in a well. The bottom-hole pressures were obtained with the diaphragm gauge shown in Figure 5. The exact total depth of the well is 3826 feet and it is producing from that chat. It is a small producer with a very high gas-oil ratio. This is the type curve that might be expected in a well producing small amounts of oil with a high gas-oil ratio.

It will be noted that, for the first six hours the well was closed in, there was practically no change in the pressure differential between the bottom-hole and casinghead. After this period, however, the pressure differential decreased uniformly. The bottom-hole pressure remained about constant and the increase in casinghead pressure was very gradual, following along an almost straight line.

Thief samples taken on this well showed inconsistent results because of gas breaking through the oil column at the bottom of hole when the thief was run. The most successful test made showed a gas-oil ratio of 178 cubic feet at the bottom of the hole. No gas-oil ratio was obtainable simultaneously at the casinghead. There

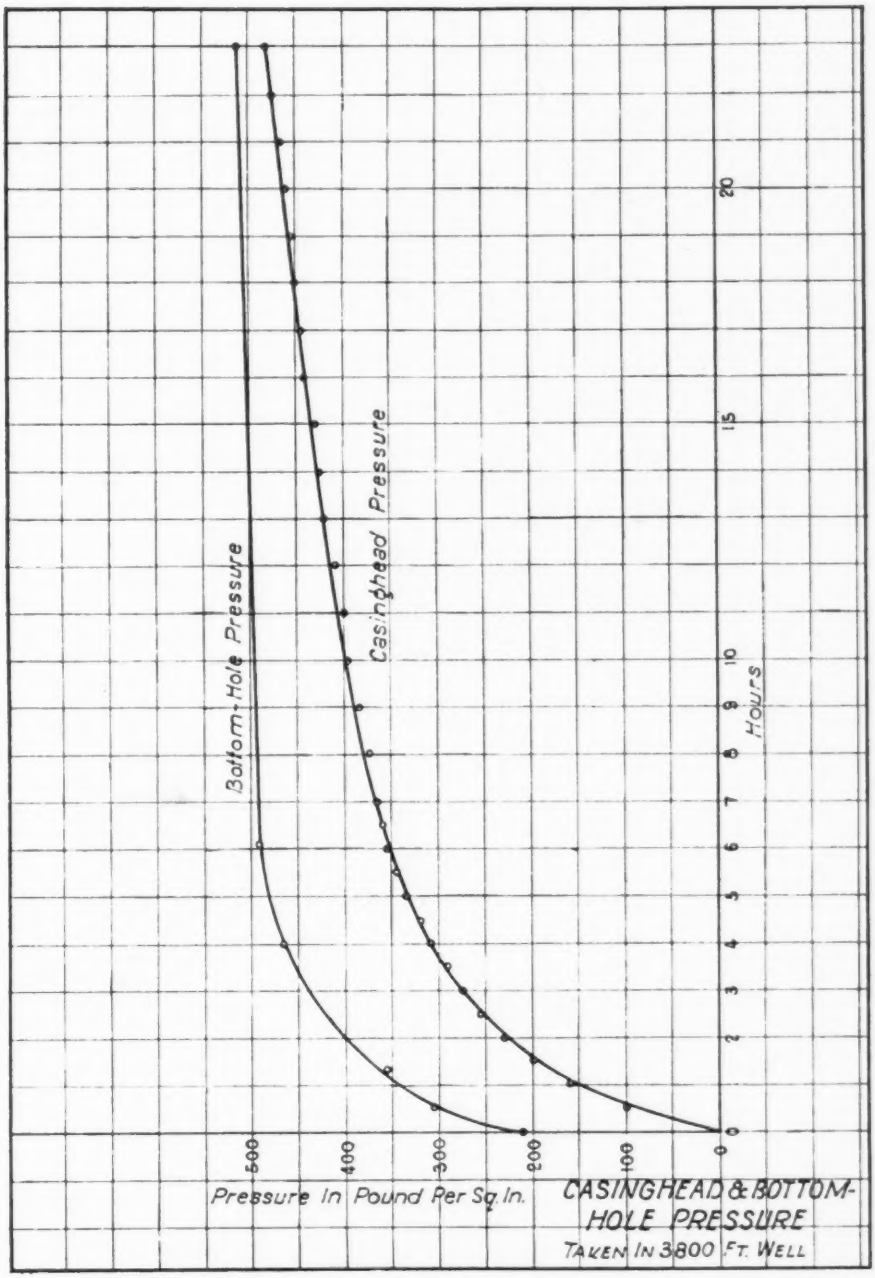

Figure 6—Relation between bottom-hole and casinghead pressure in a well, the bottom-hole pressure being obtained with the diaphragm pressure gauge.

was a variation in gravity from 42 degrees A. P. I. to 40.6 degrees between the oil at bottom-hole and casinghead. The average bottom-hole temperature recorded was 127 degrees F.

In a well with a high rate of oil production and low gas factor, it is to be expected that the pressure differential between the bottom of the hole and casinghead would be greater. It may be possible, from a study of curves showing relationship between casinghead and bottom-hole pressure, to determine the capacity and rate at which a well is capable of producing.

In Table 1 are presented bottom-hole data obtained in a flowing well producing from the Wilcox sand. The differences between bottom-hole and casinghead data are very pronounced. A large increase in gas-oil ratio with a decrease in temperature, gravity of oil and gravity of gas is noted.

The effect of the higher pressure at the face of the sand is observed in the richer gas and higher gravity of oil in the bottom-hole sample. The amount of gas in the liquid phase is greater at higher than at lower pressures. Also, as the pressure is lowered, the amount of gas in the liquid phase is decreased and the amount in the gaseous phase increased. Surface tension and viscosity are also lowered as the quantity of gas in the liquid phase is increased, hence it is desirable to maintain as small a pressure differential as operating conditions will permit at the face of the sand. With bottom-hole data before him, the engineer can better visualize the probable effects of changes in well operations.

The results of a test made with

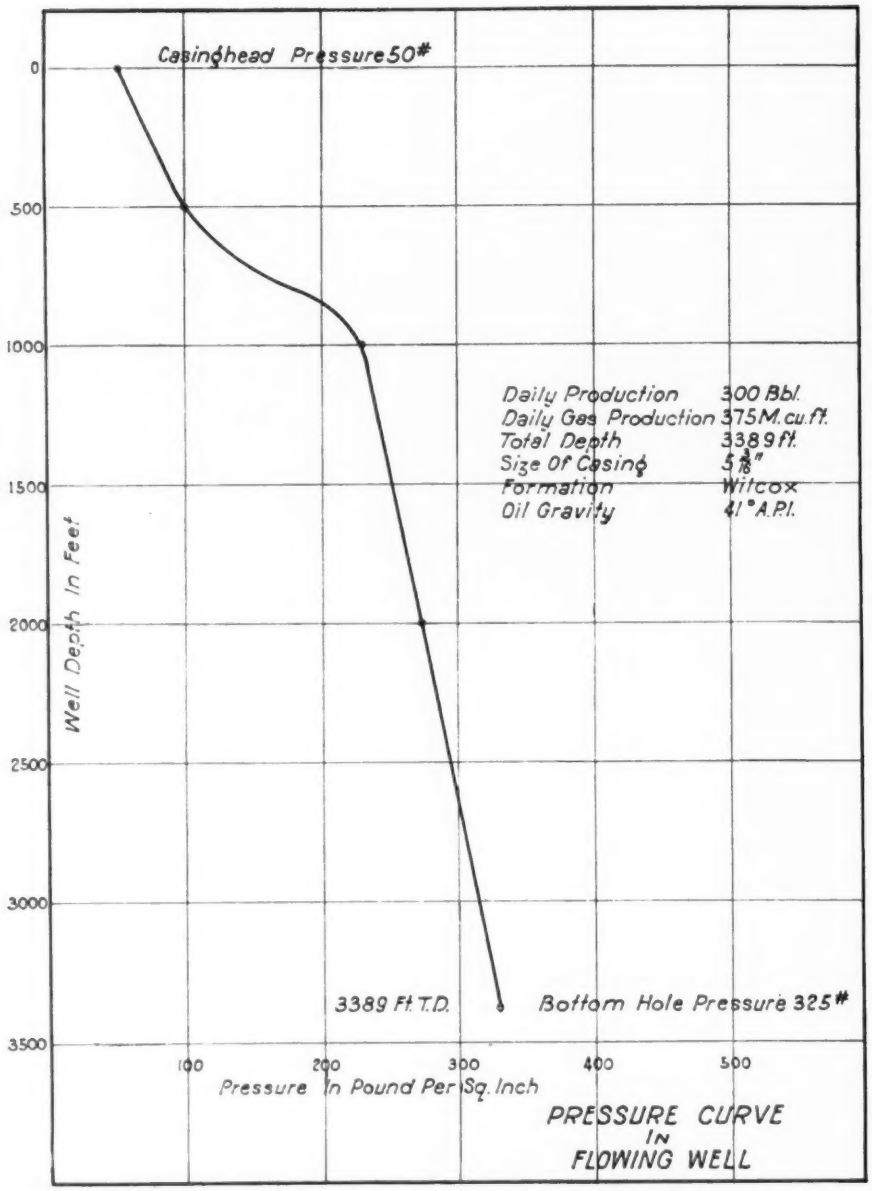

Figure 7—Results of a test made with recording pressure bomb to determine pressure at various points in a well, while the well was flowing

the recording pressure bomb to determine the pressure at various points in the well from which bottom-hole data in Table 1 were obtained, while the well was flowing, are shown in Figure 7. Between 500 and 1000 feet there is an abrupt change in pressure. This evidence indicates that a flowing well can have a fluid level. Further experimental work and tests in the field probably will show that the average flowing well has a fluid level.

A relation may, and probably does, exist between the chemical composition and physical characteristics of the oil and gas and the pressure and temperature at which the abrupt change occurs. From the bottom of the hole to the point where the abrupt change in pressure occurs, the oil is lifted chiefly by levitation due to gas in solution in the oil expanding. Above this point the oil is carried upward in a fine spray by the velocity of the gas.

If, in addition to pressure reading, corresponding temperatures are taken, we have a reliable and practical means of acquiring valuable information on velocities in the flow string of an oil well. This information would be vital in the design of flow strings since at present there is no means for computing fractional effects of gas-oil-water mixtures. If the evidence presented by the curve shown on Figure 7 is correct, it points to the fallacy of assuming that the velocity in the flow string of the average oil well is a smooth or straight line function of the depth.

By taking measurements of bottom-hole pressure at intervals with well bailed down, and observing the rate of inflow with the well closed in, the condition of the well can be checked and operating information furnished as to whether or not a well requires cleaning out.

Bottom-hole data obtained before and after a well is shot will assist in appraising the results of shooting. Any changes in pressure, temperature, characteristics of oil and gas-oil ratios, can be detected at once by an examination of the information furnished by the bottom-hole data obtained before and after the shot.

In repressuring operations the use of bottom-hole pressure may be used to follow the pressure trends underground. Where repressuring operations are contemplated, bottom-hole pressures taken at various points in a field facilitate the interpretation of sand conditions and the selection of the key well.

It is important to have reliable data on reservoir pressures and sand conditions. A close study of bottom-hole pressure data in a relatively new field in Texas, before repressuring operations were started, revealed a pronounced pressure gradient between the high part of the structure and the edge of the field. The upper part of the structure contained gas only and large volumes were produced in an effort to produce oil. So rapidly was the gas produced from the top of the structure that it resulted in reducing the pressure in the gas area to below that existing in the edge wells of the field, thus establishing a pronounced pressure gradient. A series of bottom-hole pressure tests brought out this fact very clearly.

In the interpretation of underground structure and sand conditions bottom-hole data have a very definite application. Correlation of producing sands is possible by comparing pressure, temperature, gas-oil ratio and composition of the fluid content measured at the face of the sand. In this connection, attention is drawn to the bottom-hole data in Table 2. It will be noted that the A. P. I. gravity of the bottom-hole sample, with the well closed, is less than the sample taken at the casinghead while the well was flowing.

The sample with the well closed in

Table I—Bottom-Hole Data —Flowing Well

(See Figure 7 for Pressure Curve)

Daily Oil Prod.	300 barrels
Daily Gas Prod.	374 M. Cu. Ft.
Total Depth	3389 feet
Size Flow string	5 3/16 inch casing
Producing formation	Wilcox Sand

	Bottom-hole	Casinghead
Pressure	325 Pounds	50 Pounds
Temperature of Oil and Gas	124°F.	82°F.
Gas-Oil Ratio	488 cu. ft./bbl.	1250 cu. ft./bbl.
Gravity of Oil	41.2° A.P.I.	41.0° A.P.I.
Gravity of Gas	.994	.863

Oil Analysis Gravity A.P.I.		Yield %
Gasoline	60.1	35.3
Kerosene	43.1	20.0
Gas Oil	36.1	11.8
Light Lub. Dist.	31.9	8.8
Med. Lub. Dist.	29.2	6.0
Residuum Gravity	20.8	

Gas Analysis

CH_4	5.3%
C_2H_6	69.8%
N_2	24.4%
CO_2	0.3%
O_2	0.2%

B.T.U.—1285 per cu. ft.

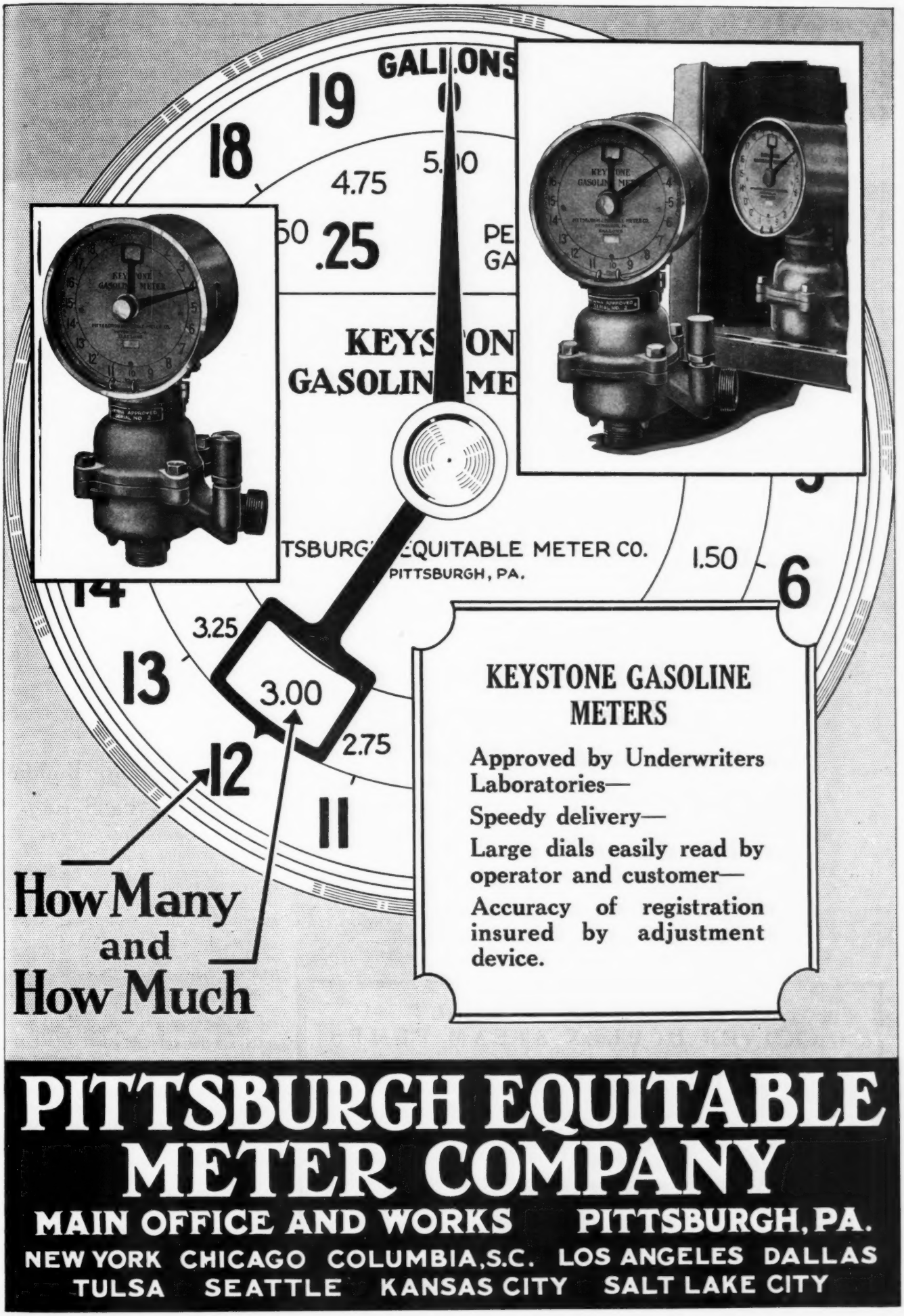

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Table II—Bottom-Hole Data

Well pinched in to 50 barrels daily average. Gas-oil ratio 550 cu. ft./bbl.
Total depth 2899 feet.....Size flow string 6⅝ inch casing
Producing formations.....Wilcox sand and Siliceous lime

	Well Flowing		Well Closed In	
	Bottom-hole	Casing-head	Bottom-hole	Casing-head
Pressure	310 lbs.	10-25 lbs.	725 lbs.	160-480 lbs.
Temp. Oil and Gas	127°F.	86°F.	126°F.	....
Gas-Oil Ratio	214 cu. ft./bbl.	550	231 cu. ft./bbl.	....
Gravity of Oil	36.7 A.P.I.	36.1 A.P.I.	35.9 A.P.I.	....
Gravity of Gas	1.089	....	1.117	....

Oil Analysis—Bottom-Hole Data

	Well Flowing		Well Closed In	
	Gravity A.P.I.	Yield %	Gravity A.P.I.	Yield %
Gasoline	56.5°	22.7	56.4°	24.0
Kerosene	37.7	16.0	37.7	16.7
Gas Oil	31.9	11.7	32.5	10.4
Lt. Lub. Dist	30.0	11.5	29.5	11.0
Med. Lub. Dist	28.0	6.7	28.0	7.0
Residuum	21.3	31.4	22.5	30.2

Gas Analysis—Bottom-Hole Sample

	Well Flowing	Well Closed In
CH_4	20.0%	20.7%
C_2H_6	53.0	55.0
N_2	13.6	11.0
CO_2	0.2	0.2
O_2	0.2	0.1
C_3H_8	8.0	8.0
C_4H_{10}	5.0	5.0
B.T.U.	1503 per cu. ft.	1543 per cu. ft.

was the first to be taken, the other obtained the day following. The difference in gravity is accounted for by the fact that the well was producing from two distinct horizons, namely, the Wilcox sand and the Siliceous lime. When the well was drilled into the Wilcox sand the gravity of the oil was 37 degrees A. P. I. Later, when the well was deepened to the Siliceous lime the gravity was observed to be about 33 degrees.

Pressure irregularities at the face of a sand over the field may provide a clue to changes in sand conditions. An area where cementation, or sedimentation, has altered the permeability of the sand to any extent would be reflected in the bottom-hole pressure of producing wells in that area.

In problems relating to rate of decline, or rate of depletion, we are confronted with the problem of determining only from the amounts of gas and oil produced how the rate of decline is trending. From this information, it is usual to project into the future curves which will assist in forecasting the expected ultimate recovery.

If the amount of gas and oil produced from a reservoir is known, and also the composition of the gas and oil, production data may further be supplemented by bottom-hole pressure and temperature readings at regular intervals. Pressure volume relations can supplement statistical data in forecasting ultimate recovery and rate of depletion.

The use of bottom-hole data may be extended to problems of proration; also to problems involving equity where working agreements are in force. The purpose of any proration agreement is to reconcile equities in a field. Since the amount of oil recovered is controlled by the amount of energy in the reservoir, it follows that methods of proration should be based on energy conditions.

Complete bottom-hole data gathered at regular intervals will be of assistance in determining the amount of proration that each well receives. It may be that, when sufficient progress has been made in taking bottom-hole data, equitable methods of proration based on reservoir energy will suggest themselves.

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Gasoline Plant Building At Santa Fe Springs

LOS ANGELES, Oct. 20.—The first natural gasoline plant to be erected in the rejuvenated Santa Fe Springs, Calif., field has just been contracted for by the Norwalk Co. It is to be built on the little Lake Road lease.

The contract, let to J. A. Campbell, of Long Beach, Calif.. calls for a 30,000-gallon plant, Campbell equipment being specified. There will be included an "oil-froth" stripper, a recent development.

Of special interest is the fact that all equipment is to be of riveted construction, built for a working pressure of 50 pounds and a factor of safety of at least 5. Construction on the plant started Oct. 1. It is expected to be completed in operation by Nov. 17.

CHICAGO, Oct. 25.—J. S. Schurman, president of the Standard Fuel and Furnace Oil Co., at 420 West 37th street, Chicago, recently completed an eight-car switch track at his plant.

Dollar Economy Is a Good Yardstick To Measure Refinery Insulation

By C. A. Frankenhoff*

MORE safety—more economy—less waste—better products. These four ideas are in the program of all progressive oil companies, whether the company be engaged in producing only, refining only, marketing only, or in a combination of these branches of the industry. The oil industry is a romantic one and it has the attractive vigor of youth. Accordingly, progressive, energetic men have been drawn together to make that industry one of the most progressive, if not the most progressive of all industries.

This spirit of progress inevitably has led to many changes in methods used in the various branches. New equipment of greater efficiency requires usually more careful control and regulation and the oil industry is not an exception to that rule. Each year, each day equipment installed but a year or so before gives way to better methods or equipment which enable the oil industry to bring the raw product from its hidden depths to the ultimate consumer in its finished form at a lower cost and with higher quality.

Perhaps the greatest improvement in increasing safety, cutting costs and improving the quality of the product has taken place in the refining end of the industry. In this end of the industry temperature, pressure and time always have been, and probably always will be, the tools by the aid of which the final products are formed in suitable equipment. The many possible combinations of pressure, temperature and time create a multitude of conditions with the variety of combinations. Each new condition requires special study and a change in equipment to meet those conditions. The trend, of course, is to higher temperatures and pressures. With the study of these new conditions has come a better knowledge of old conditions and equipment. As we look back we cannot avoid feeling that the methods now in use could well have been adopted before as their advantages are obvious.

Ten years ago, insulation to many refiners was just insulation or a covering and little attention was paid to the quality or relative merits of the materials available for the purpose. At that time more attention first began to be paid to the return on the investment, rather than to the original cost of the material offered for insulation purposes. Each year has brought home more forcibly to us all that insulation specification and purchases should be based on results obtained and not cost. Best dollar economy is obtained when the proper material for the conditions obtaining on the equipment is used, because its life will be longer and its operation more satisfactory and dependable.

C. A. FRANKENHOFF

With but few exceptions, the temperatures and pressures obtaining in refining equipment today are much in excess of those of 10 years ago. Many refiners then operated stills, boilers and other heated equipment without insulation, with the result that there was a very great waste of natural resources to the nation and loss in profit to themselves. But progress permits no interference; it was a question of improve or lose ground.

The suggestions given in the following recommended constructions are based on construction used in equipment now operating entirely satisfactory.

It is desirable, where possible, to have standards by which to judge the merits of any material for conditions under which the equipment will operate. Accordingly, there are listed the materials which are readily available, the various temperatures at which they may be safely used and the conductivity and other specifications of these materials. These materials are designated by letter in order that they may be referred to in the recommendations covering the use of these materials for the insulation of various types of equipment.

On some of the types of equipment one or more of these materials may be used with satisfaction, it being entirely a question then of cost, unless there are some other factors entering into the situation such as greater dependability, less shut-downs for repairs, etc., which would warrant paying a higher cost for one material, although a cheaper material might for the present serve satisfactorily on the equipment in question.

It should be noted that the size of the unit of insulation does not affect the efficiency of the insulation as a whole of that material, provided the cement used for filling the joints is permanent and as good or better an insulator than the block or brick proper.

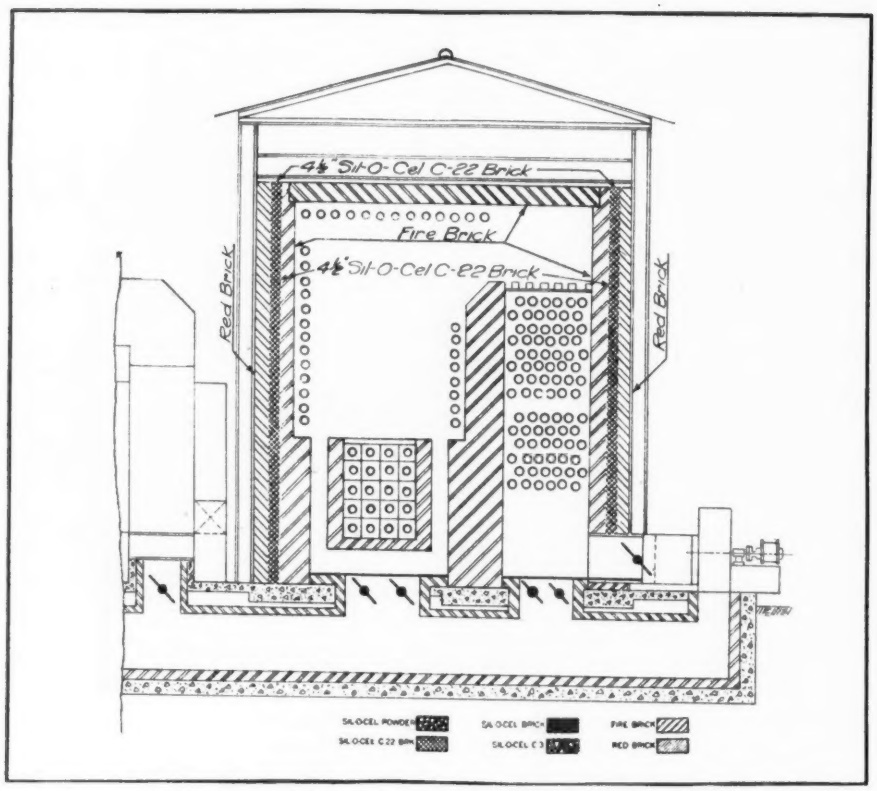
On the first consideration it might be felt that the larger the block, the more efficient the insulating covering, but this is not necessarily the case. Regardless of the size of the block of insulation the same total area of the still would be exposed as the still expands, and whether the block be large or small, because the expansion of the insulation is nil as compared with the expansion of steel.

Materials Available and Their Specification

A—Natural diatomaceous earth brick—These brick are furnished in standard firebrick size, 9 by 4½ by 2½ inches. They should have a crushing strength of about 440 pounds per square inch. They should be capable of standing a temperature of 1600 degrees F. on the brick without shrinkage. At 1600 degrees F. the conductivity of the brick, based on mean temperature, should not be more than .95 B.t.u. per square foot per hour per inch of thickness per degree F. Please note that this is based on mean temperature and not on hot face temperature. The brick should have an approximate composition of 92 per cent SiO_2 and they should not weigh more than 1¾ pounds each.

B—Calcined diatomaceous earth

*Manager, Central division, Celite Products Co.



Method of insulating a pipe still furnace (Cross cracking unit)

brick—These brick are furnished in standard firebrick size, 9 by 4½ by 2½ inches. They should have a crushing strength of about 600 pounds per square inch. They should be capable of standing a temperature of 2200 degrees on the brick without shrinkage. At 2200 degrees F. the conductivity of the brick, based on mean temperature, should not be more than 2.4 B.t.u. per square foot per hour per inch of thickness per degree F. The brick should have an approximate composition of 85 per cent SiO_2 and they should not weigh more than 2¼ pounds each.

C—Super calcined diatomaceous earth brick—These brick are furnished in standard firebrick size, 9 by 4½ by 2½ inches. They should have a crushing strength of about 500 pounds per square inch. They should be capable of standing a temperature of 2500 degrees F. on the brick without shrinkage. At 2500 degrees F. the conductivity of the brick, based on mean temperature, should not be more than 2.6 B.t.u. per square foot per hour per inch of thickness per degree F. The brick should have an approximate composition of 95 per cent SiO_2 and they should not weigh more than 2¼ pounds each.

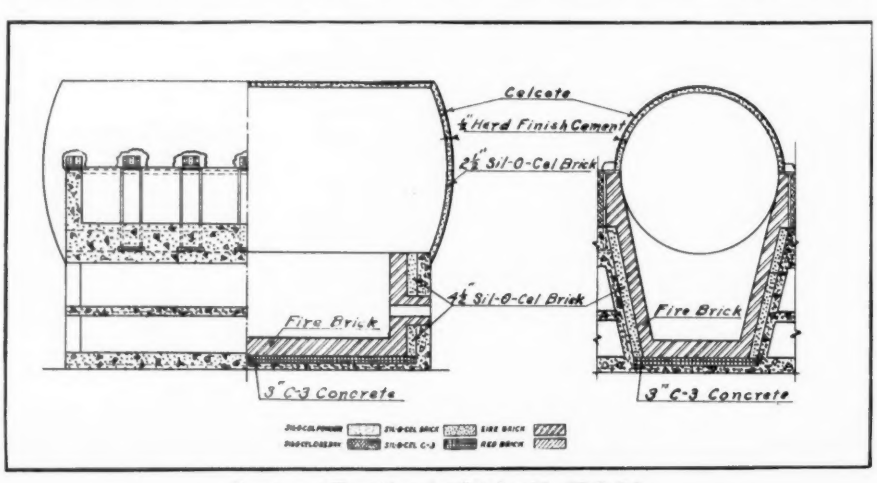
D—Insulating concrete, diatomaceous earth calcined granular. This is a semi-refractory insulating product made from the mineral Celite, calcined in order that it may withstand temperatures in excess of 2000 degrees F. without shrinkage. It is a coarsely ground, granular material with a sufficient proportion of fines to insure a uniform mass without large voids. It may be used alone, or in combination with Portland cement to form an insulating concrete. This material should not shrink or spall. In loose form it should weigh about 28 pounds per cubic foot. When rammed into place moist, without the addition of any bonding material, as Portland cement, it should weigh about 31 pounds per cubic foot. This material should be packed in bags containing about 100 pounds each. To make an insulating concrete, granular calcined diatomaceous earth should be mixed with Portland cement, in the proportion of four parts of this material to one part of Portland cement by volume with sufficient water to form a plastic coherent mass. For this purpose approximately 32 pounds of this material are required per cubic foot of concrete. The insulating concrete produced weighs about 60 pounds per cubic foot when rammed into place and dried.

E—Natural diatomaceous earth granular—This is a material which is milled to a coarse mesh. It should be used where the temperatures will not be in excess of 1600 degrees F. It should weigh not more than 22 pounds per cubic foot. Where the temperatures are not in excess of 1600 degrees F. a very satisfactory mixture of considerable structural strength can be obtained by mixing four parts of this material with one part of Portland cement by volume with just sufficient water to make a stiff "dry" paste.

F—Diatomaceous earth asbestos block—These blocks should be composed of principally a high-grade diatomaceous earth powder with sufficient long-fibered asbestos to give the required strength. They are furnished in 6 and 12-inch widths, lengths of 18 and 36 inches, and thicknesses of 1, 1½, 2, 3 and 4 inches. They should weigh approximately 2 pounds per board foot and they should be packed for shipment in wooden cases. The conductivity of these block, where recommended for temperatures up to about 1500 degrees F. should not be in excess of .7 B.t.u. per square foot per hour per degree difference in temperature per inch of thickness. The large amount of diatomaceous earth powder used in the manufacture of these block makes for a high efficiency where block are used for insulation. This grade of material is also available in sectional pipe covering form and the same specifications will obtain.

G—Magnesia block and pipe covering—This material is, of course, made on the regular magnesia specification but it should not be used in excess of 550 degrees F. This material weighs about 14 pounds per cubic foot. It is shipped in crates.

H—Adhesive coating—For covering brick surfaces, to prevent air infiltration and for waterproofing insulation which is exposed to dampness, a high-grade plastic adhesive coating material should be used. This should



Concrete still setting insulated with Sil-O-Cel

weigh about ½-pound per square foot ⅛-inch thick. Care should be taken in the selection of this material, particularly because it is easy to be misled unintentionally on the quality of the various materials available for this purpose. This material should remain permanently elastic and impervious, and should not be exposed to temperatures on the outside of the insulation in excess of 450 degrees F. This material has practically no insulation value. It is used as a waterproofing and protective coating. Simple tests can be made to determine the relative elasticity of samples of materials submitted for consideration.

Conductivity

Heat is transferred ordinarily from the interior of equipment to the outside by radiation, conduction and convection. The heat saved by the use of insulation is saved because of the lower conductivity of the insulation as compared with firebrick or red brick. Radiation and convection do not operate within the insulation or within the components of the wall itself unless the air cells are sufficiently large to permit radiation and convection. There are types of insulation in which the air cells are quite large and in these types the radiation particularly and sometimes convections become important considerations because they act to greatly increase the heat loss through the insulation.

Generally speaking, the air cell which is apparent to the eye will operate to increase the heat loss through that material. (See Ray and Kreisinger, Bulletin Number 8, Bureau of Mines.) In many cases these air cells which are apparent to the eyes are continuous through the insulation and this condition naturally operates to greatly increase the heat loss.

The tabulation given in Table 1 gives a typical idea of the method

Concrete still setting being lined with fire brick and insulating brick

used to determine the savings to be made by insulation. The estimated construction cost is based on the assumption that the firebrick would cost about $90 per 1000 installed, the calcined diatomaceous earth brick about $120 per 1000 and the red brick $40 per 1000 installed. Although the construction tabulated is an assumed one, the savings on similar walls of other construction would be about the same and would amount to about 60 per cent or 70 per cent of the heat ordinarily lost through uninsulated walls.

Recommendations for Insulation

Insulation of direct-fired stills: Under this heading comes crude, coking, lubricating, re-run stills, etc., where the shell proper is in a brick setting, the lower half being subjected to direct heat of the combustion gases. This type of equipment should be insulated in the setting walls with a 4½-inch course of material A or B in back of 9 inches of firebrick. Preferably material B should be used if the temperature in the furnace exceeds 2000 degrees F. The temperature in the shell of equipment of this type probably will not exceed 600 to 700 degrees F. In this case materials A and F should be used to a suitable thickness. This thickness ordinarily should be two 2½-inch courses of material A or material F, covered with one-half inch of good grade hard finish cement, which in turn should be covered by material H. It is possible that material G may be satisfactory for these shells but it is suggested that if the temperature which will obtain in the shell is close to the maximum temperature for which material G is recommended that either of the first two materials be used.

Steam Stills: As steam distillation is essentially a low temperature operation, materials A, F and G may be used. The towers in the case of the steam still should be insulated in the same manner as the shells on the direct-fired stills. In many cases it is a question of the relative value of fuel and the cost of insulation but it is comparatively simple to figure the return on the investment which must be obtained in order to warrant the additional thickness of insulation.

Pipe Stills, Tube Stills and Cracking Coils—Base Insulation. For the insulation of the base a 6-inch course of material D, insulating concrete, mixed with Portland cement in the proportion of four parts of material D and one part of Portland cement should be placed over the concrete foundation for protection of the concrete. Over this should be placed a

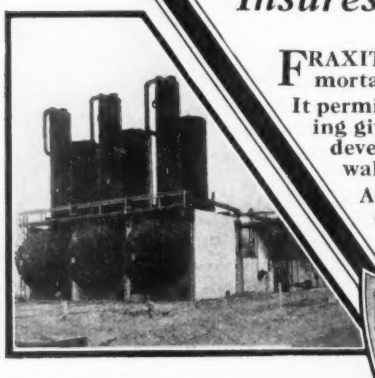
Table 1

Firebrick—$90 per M. installed.
Insulating Brick B Grade—$120 per M. installed.
Redbrick—$40 per M. installed.

	Usual Uninsulated	Recommended Insulated
Temperature.	2200° F.	2200° F.
Construction.	13½"—Firebrick 8"—Redbrick	9"—Firebrick 4½"—B Grade Brick 8"—Redbrick
Materials required per square foot.	19.5—Firebrick 16—Redbrick	13—Firebrick 6.5—B Grade Brick 16—Redbrick
Estimated cost per square foot in place.	FB—19.5x9=$1.755 RB—16 x4= .64 $2.40	FB—13x9=$1.17 B —6.5x1.2=.98 RB—16x4= .64 $2.79
Difference in cost per square foot.		+39c
B.T.U. per square foot per hour lost	777	320
B.T.U. saved per square foot per hour by insulation		450
Heat saved per year in millions B.T.U. per sq. ft.		3.29
Value of B.T.U. saved per year by insulation at 30c per million per sq. ft.		3.29x30=98.7c
Return on investment in insulation		250%

FRAXITE

Insures the Life of Firebrick



FRAXITE high temperature cement is a refractory mortar for laying and facing firebrick.

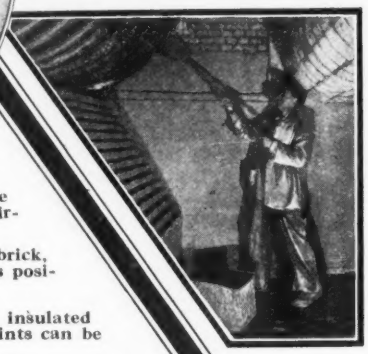
It permits the use of extremely thin joints. Air drying gives it a substantial initial set. Under heat it develops a strong ceramic bond that makes the wall virtually a monolithic structure.

Applied as a facing over firebrick it provides a durable protective coating that also reduces air infiltration.

Fraxite is shipped dry—you pay no freight on water. Write for complete information.

CELITE PRODUCTS — BARRIERS TO INDUSTRIAL WASTE — FILTER-CEL AND SUPER-CEL FOR FILTRATION — SIL-O-CEL FOR HEAT INSULATION — CELITE FOR BETTER CONCRETE

To Make Masonry Construction Air-tight and Water-tight



HEATED equipment that is not steel-encased can be permanently weather-proofed and sealed against air-infiltration with Celcote.

This tough, elastic compound adheres readily to firebrick, red brick, plaster or insulation. Properly applied it is positively weather-proof and air tight.

It is used successfully on any equipment that is insulated against excessive heat radiation. Aluminum or oil paints can be applied over it when desired.

Celcote is ready mixed, and requires no particular skill in application.

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2½-inch course of firebrick to protect the insulating concrete from the action of the flame. In cases where there are flues under the stills leading the gases back to the stack the entire flue may be constructed of this insulating concrete without a protective course of firebrick, provided the temperature of the gases passing through the flue does not exceed 1800 degrees F. Of course, it is possible to use a combination of materials A and B for the insulation of the base as well, but it is our suggestion that the concrete material be used because this material more readily meets the field conditions and is easily placed. There may be particular conditions where a combination of materials A and B may be more satisfactory.

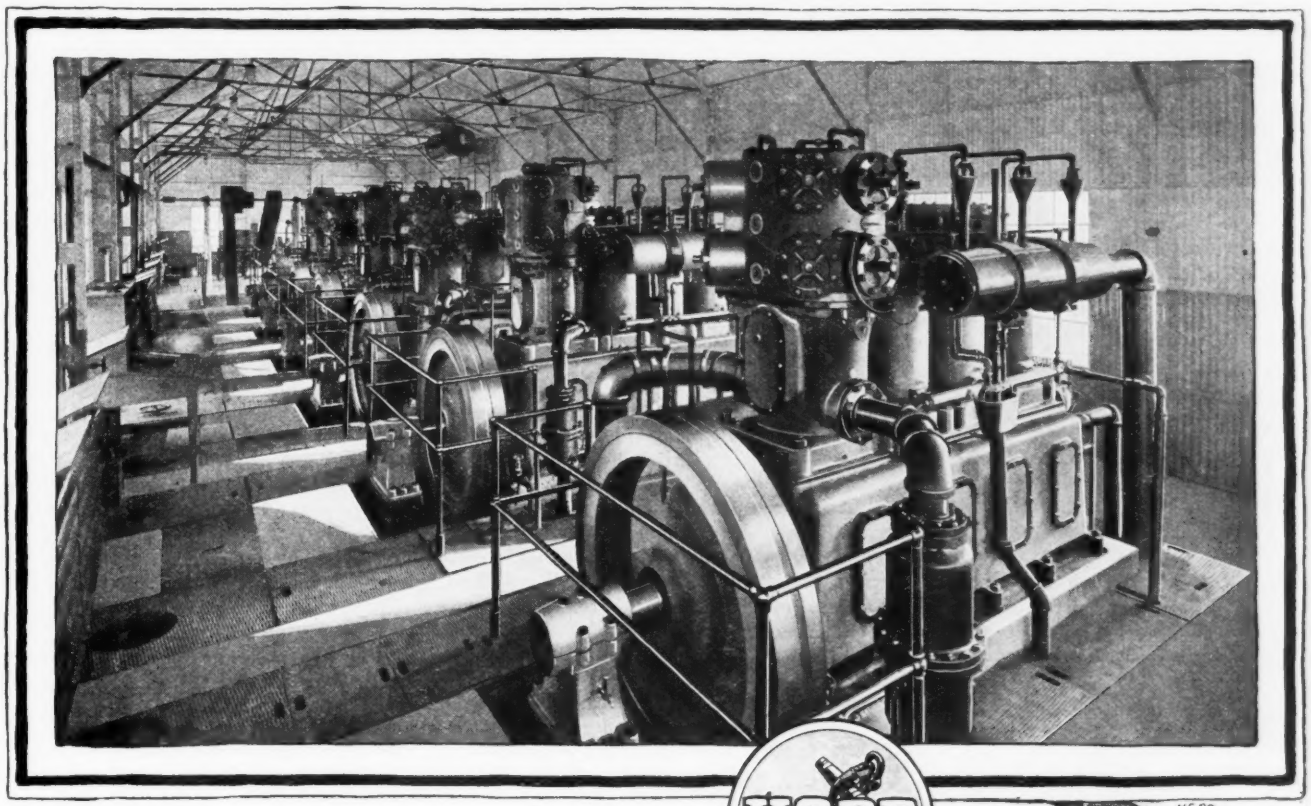
Walls—Construction A: For Pipe Stills, Tube Stills and Cracking Coils. The ordinary construction used is a combination of 9 inches of firebrick, 4½ inches of material B in the furnace section, and 8 inches of red brick. In the tube banks a 9-inch course of firebrick, 4½ inches course of material A and an 8-inch course of redbrick is used. The firebrick should be bonded to the redbrick by means of a suitable tie. These bonds should be spaced about six courses vertically and about 18 to 22-inch centers horizontally. They should preferably be staggered.

Walls—Construction B:—Where it is desired to use a solid firebrick setting, the application of a 4½-inch material B as a veneer course on the outside of the wall should be used. This veneer course will, of course, have to be tied to the firebrick by means of a metal or firebrick bond. Material A should be used when the outside of the still is enclosed in a steel casing or similar covering. Material B should be used where the material is to be exposed without a protective steel or solid sheet form of covering. If material A or B is to be used without a protective sheet steel or solid sheet form of covering, a ⅛-inch course of material H should be applied.

Top—Even though the top of this type of equipment in most cases is composed of suspended flat arch construction, it is usually possible to use some form of insulation for this construction to advantage but in each case the recommendations should be obtained from the company interested in supplying material. Ordinarily the temperature obtaining on this flat arch is about the temperature which obtains in the tube bank and therefore materials A and F would be satisfactory. It is necessary to protect these materials from the weather of course.

Tube Plate—For the insulation of the tube plate which is exposed to about 1500 to 1800 degrees F., the use of the insulating concrete, material D, has been found most satisfactory and is perhaps being almost universally used for this purpose.

Undivided Responsibility



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The tube plates can be insulated with the insulating concrete by simply placing them on the ground and using the blocks to fit in the pipe holes and then pouring insulating concrete in place, or by erecting the units and then placing the concrete. The first method is considered most satisfactory.

Burton Stills: Although there are no Burton stills now being installed in this country, there are a large number of them still operating. Some of these were originally put in to be fired with coal and have since been changed to oil. In the units as originally erected, the load of the shell and tube bank was carried on structural members going into concrete foundations and sidewalls. These concrete foundations and sidewalls were protected by an 8-inch course of red brick and 9 inches of firebrick. When the stills are changed to oil it is desirable to have a larger combustion space, and in most cases it is impossible to obtain a larger combustion space because the stills are set in battery. There is one way in which a somewhat larger combustion space can be obtained and that is by replacing the 8-inch course of red brick with a 2½-inch or 4½-inch course of material B. A 4½-inch course of material B in place of the red brick which will not increase the cost of construction over the use of red brick. It will have the advantage of additional protection for the concrete, and better insulating efficiency, together with larger combustion space, is obtained without additional cost.

The baffle plates, so-called on Burton stills, are ordinarily made of refractory materials, but these can be made up of the insulating concrete properly reinforced, and an improvement in the economy of the still results.

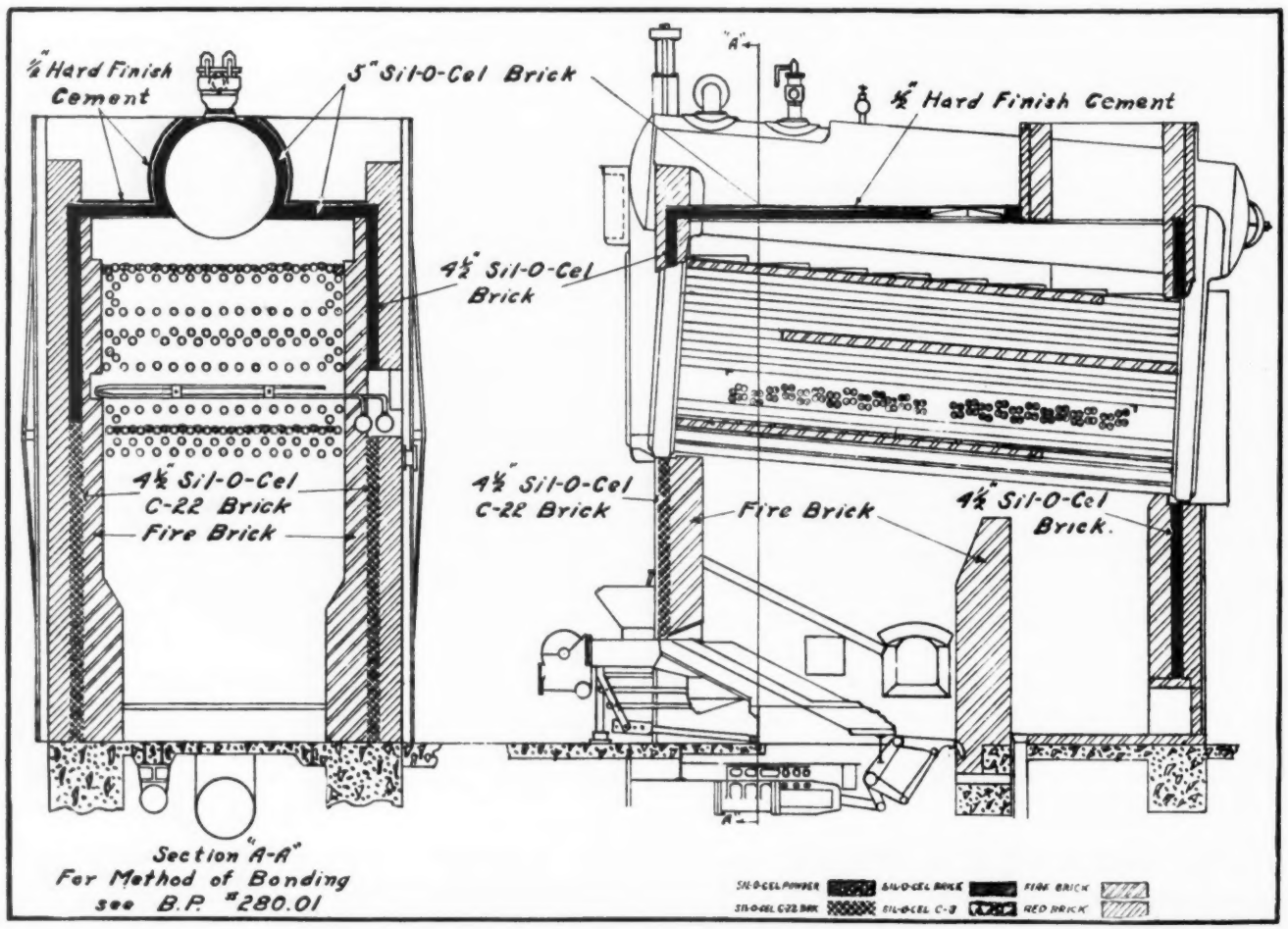
We are not discussing insulation of the different types of cracking units now in use because most of these units include pipe still, tube still or a cracking coil of some sort and the construction which is recommended is covered under that heading.

Expansion Chambers, Dephlegmating Towers, etc.: Expansion Chambers—Ideas on proper insulation of expansion chambers have been changing continuously with the desire to improve the safety of operation of the equipment of which the expansion chambers are a part. Many of these expansion chambers are insulated with materials A and F, held in place by means of anchorage, covered with hard finish cement and the adhesive plastic material. Other types of expansion chambers have been insulated with an 8 to 9-inch course of material E. This construction is perhaps the cheapest and the most efficient and most desirable, even where it is desired to inspect the chambers at very frequent intervals. It simply requires that some method of handling the loose material be arrived at in order to avoid too much loss of material. This material is considerably more efficient than any other material which might be offered for this purpose, and at the same time is so much lower in cost that a suitable means of removing the material for inspection can be worked out in each refinery with or without the cooperation of the supplier of that material.

Dephlegmating Towers—These may be similarly insulated. Where materials A or F are used, the thickness should preferably be two 2½-inch courses to give best control.

Boilers:—In industrial plants, power and steam are used in the manufacturing process. The percentage of cost of manufacture, charged to power, varies with the commodity produced. Power, therefore, is an aid to production, whereas in public utility plants, it is the product. In industrial plants, water tube boilers are used principally, although in the smaller plants, return tubular boilers are used to a considerable extent. In

(*Continued on Page* 80)



Heine boiler insulated with Sil-O-Cel

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PROTECTION

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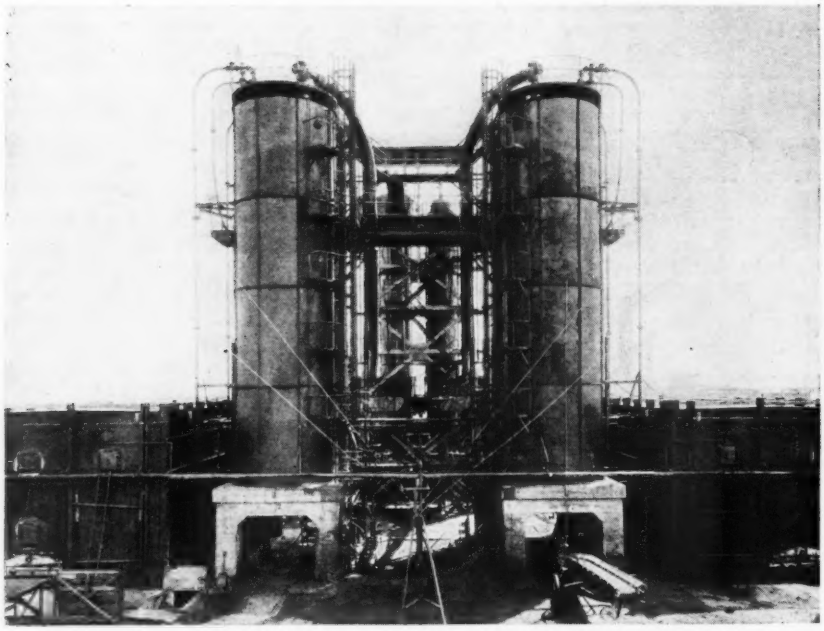


Dubbs reaction chambers, a big job of insulation (Paragon Refining Co., Toledo, O.)

the ordinary industrial plant, the conditions under which the boilers operate are not nearly so severe as in public utility plants and the boilers on an average are considerably smaller.

By a baffle system the gases in water tube boilers are guided to travel through two or three passes to secure the maximum heating value from the fuel consumed. The furnace section of these boilers is maintained at a temperature of from 2500 to 2600 degrees F., as a general rule, and in these cases 13½ inches of firebrick should be used backed up by 4½ inches of material B and either 8 inches of red brick or a steel casing as the case may be. In the first pass the same construction should be used as in the furnace, with the exception that if desired, the thickness of firebrick may be reduced to 9 inches toward the top of the first pass. In the second and third passes material A can be used instead of material B and the firebrick can be cut down to 9 inches of second-quality.

The drums should be covered with two 2½-inch layers of material A, which should in turn be covered with ½-inch of hard finish cement.

The amount of radiation losses from setting walls is practically impossible to measure directly. In most heat balances this factor is shown combined with unaccounted for losses. However, it is generally agreed that the largest part of the unaccounted for losses is due to radiation. The Heine Boiler Co. gives a typical heat balance in which the "radiation and unaccounted for" loss is 5.4 per cent. The Babcock & Wilcox Co. gives the "radiation and unaccounted for" loss as 4.15 per cent. This factor for well constructed settings, not insulated, is variously estimated at from 4 to as high as 6 or 7 per cent. For our purpose we can safely use a figure of 4 per cent for the normal radiation loss from uninsulated settings of boilers used in industrial power plants, which are not operated in excess of normal rating.

The wall area per boiler horsepower in this type of boiler is considerably less than in return tubular boilers. The number of material A required per horsepower will average about 12, including insulation of tops and drums. As a typical example assume an installation of six 500-horsepower boilers operating at 125 per cent of rating, 300 days per year, 12 hours per day, 3½ pounds of coal burned per boiler horsepower. Price of coal on the grates assumed to be $5.50 per ton and radiation loss uninsulated 4 per cent.

Fuel used per year 6 boilers:

$$\frac{6\text{x}500\text{x}1.25\text{x}300\text{x}12\text{x}3.5}{2000} = 23{,}625$$

Cost of fuel: 23,625 tons @$5.50 =$129,937.50.

Savings due to insulation: $129,937.50x4%x7% (savings due to material A) =$3,638.25.

For six 500 horsepower boilers or 3000 horsepower using a figure of 12 material A per horsepower, it would require approximately 36,000 material A (part material B) which in turn replace a similar number of red brick. This would be a carload requirement and the average cost of material A and material B would not be more than $95 per thousand on the job. Figuring the value of the red brick displaced at $20 per thousand, the net investment in material A and material B is $2,700. The return on the investment, therefore, would be

$$\frac{\$3{,}638.25}{2{,}700.00} = 131\%.$$

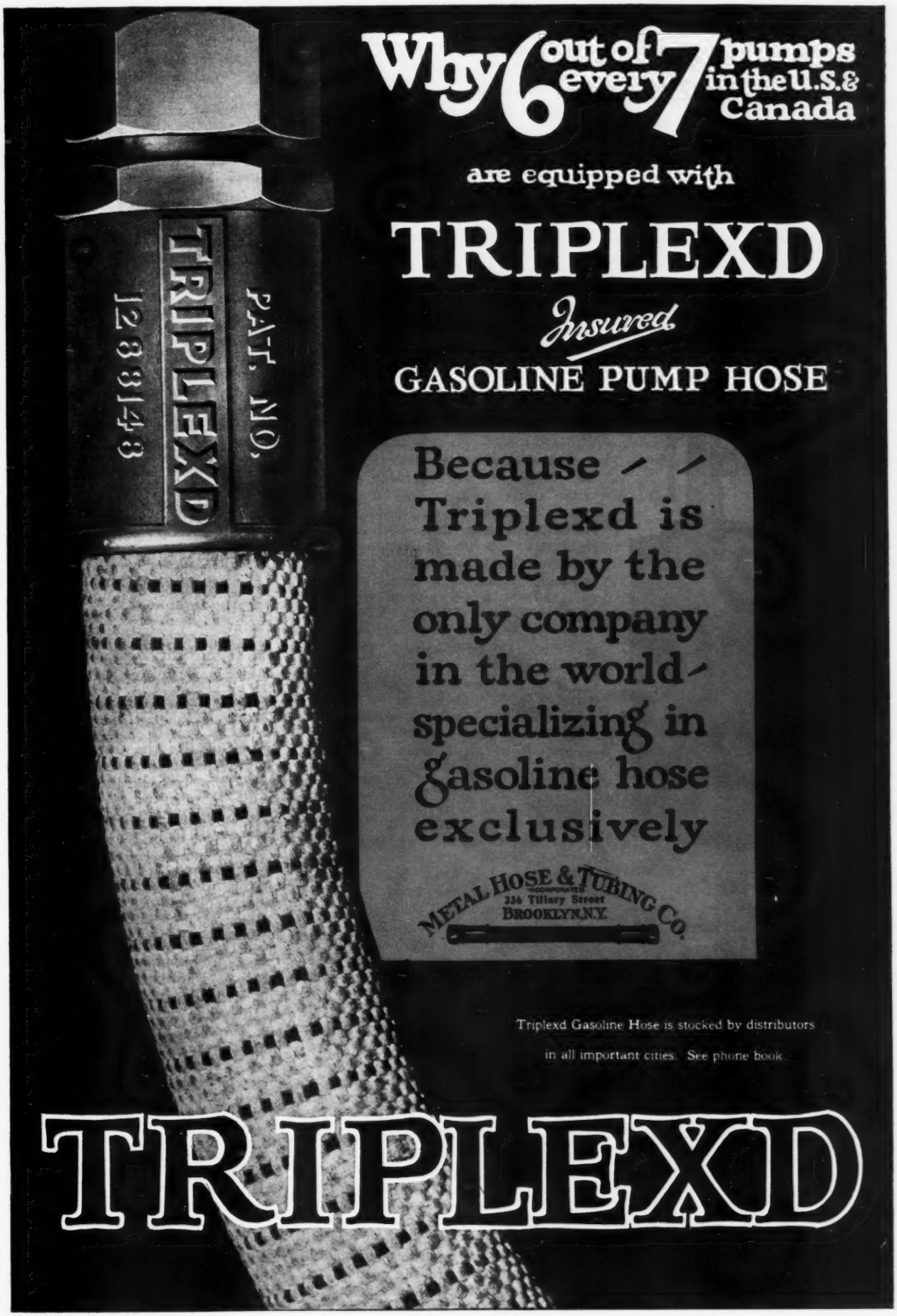
While it may be considered as unnecessary to insulate horizontal return tubular boilers which are used in some refineries at the present time, the return on the investment from the insulation of these boilers is usually considerably higher than the return on the investment for insulation of water tube boilers because the efficiency of these boilers is usually lower than the efficiency of the water tube boiler as handled in a refinery. The construction suggested for horizontal return tubular boilers for the settings is 9 inches of firebrick, 4½ inches of material B and 8 inches of red brick. For the tops of the boilers the construction recommended is two 2½-inch courses of material A or of material F or G.

Boiler Breeching and Stack: The importance of insulating breechings and stacks is now quite generally realized and insulation is almost invariably used at the present time in such equipment. Not only is it possible to effect appreciable fuel savings in this way but draft is improved and working conditions about the equipment are made more comfortable. Where possible the breechings and stacks should be lined on the inside because the steel will in this way be protected from the corrosive action of the hot gases, and it would be possible to protect the exterior of the steel with paint at a minimum cost. It is very important that the insulation be stuck securely to the steel. If this is not done, and if dependence is placed on the wire supports to hold the insulation, it will be found that in a short time the lining will sag away from the surface, allowing condensation and rusting of the steel and short circuiting of the gases with probably a serious corrosive action.

Specification for Breeching Insulation: Material A, 1¼ or 2 inches thick should be cemented to inside steel surface of breeching with special heat resisting cement, reinforced with 1-inch, 20-gauge wire mesh regalvanized after weaving, and anchored by No. 14 gauge tie wires fastened to clips previously welded to this steel surface, drawn through the insulation and tied to covering mesh. Over this insulated surface is to be applied approximately ½-inch semi-refractory cement troweled to a smooth surface.

Specification for Stack Insulation: Stack should be lined with material securely cemented to steel surface with special heat resisting cement, reinforced with 1-inch 20-gauge wire mesh and anchored by No. 14 gauge tie wires, stretched between 1-inch x 1-inch x ⅛-inch or 2-inch x 2-inch x ⅛-inch angles over brick and wire mesh. Angles placed in stack by steel contractor on 37-inch centers vertically and punched with ¼-inch holes on 12-inch centers on outstanding leg. This insulated surface to be covered with ½-inch semi-refractory cement giving a total thickness of 1¾ inches, 2½ inches or 3 inches.

This construction is being used in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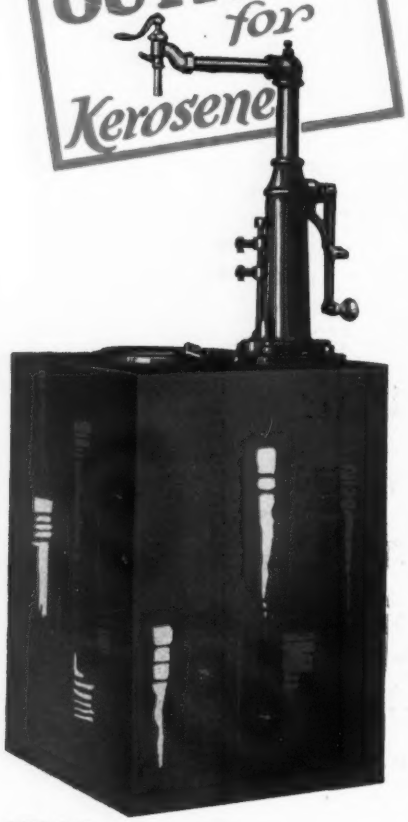

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Steam and Hot Oil Lines: Where the temperature on the oil line is above 550 degrees Fahr. it is suggested that the recommended thickness of material F, sectional or segmental covering, be used. Where the temperature is below 550 degrees Fahr. it is suggested that material G be used.

Storage Tanks: While the insulation of storage tanks is a comparatively recent development, the value of insulation for this equipment is now established beyond a possibility of doubt. Insulation of tank comes under two general classes; first, heated tanks for lubricating oils and greases, tar, asphalt and heavy residue where insulation is necessary to prevent excessive heat radiation losses; and second, tanks for storage of gasoline, crude oil and relatively light products where insulation is important as a means of reducing evaporation losses.

Heated tanks for Heavy Products: The large exposed surfaces of these tanks cause a large consumption of steam because of the heat loss by radiation, unless they are efficiently insulated. As an indication of the enormous loss from heated tanks, one company found, as a result of a test on a 55,000-barrel tank in which the oil had to be raised to 200 degrees Fahr. or kept at 200 degrees Fahr. in order to be pumped, that the amount of steam required to raise it to this temperature cost approximately $600. These tanks should preferably be insulated with a 1½-inch to 2½-inch course of materials A and F or G, covered with Hard Finish Cement and by the adhesive plastic material (H).

Gasoline and Crude Storage Tanks: A great many tests have been run to determine the amount of evaporation losses in storage and widely varying results have been secured. Sufficient data have been published, however, to indicate that the losses are almost unbelievably large. The direct saving due to insulation in terms of decreased evaporation of gasoline standing in storage, has been sufficient in some cases to pay for the insulation in sixty days. One large company in the West, as a result of tests extending over a period of two years, found that the loss of crude oil in storage amounted to approximately 10 per cent per year.

The loss in the case of gasoline would naturally be somewhat larger. Transmission of heat from the outside atmosphere to within the tank is the primary cause of evaporation loss. If the contents can be maintained at a uniformly low temperature, regardless of climatic conditions, evaporation can be reduced and almost eliminated. In the case of another company, which had a chance to make a study of three storage tanks installed in one of their distributing properties, it was found that over a period of three years 11 per cent loss in gasoline was suffered. This was sufficient to more than pay the cost of the insulation for these tanks in less than one year under the conditions obtaining in that place where the cost of construction was very high. For the insulation of these tanks, where there is not too great a temperature range, a 1¼ or 1½-inch course of materials A or G would be found to be a paying investment. The insulation will naturally have to be protected from the weather and the panel type of construction, which provides for breaking the insulation up into comparatively small panels to take care of expansion, should be used.

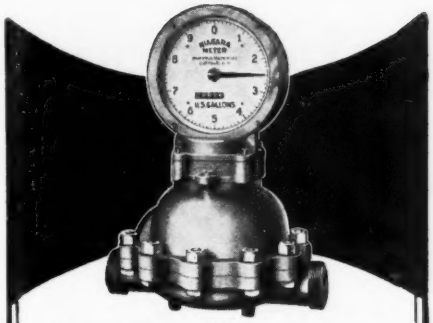
The subject of oil storage tank insulation is a large one in itself and it is thought that an article on this subject, based on the studies so far made, would be of interest to you. It is hoped that such an article may be presented later.

Cold Insulation: For the insulation of equipment used in cold processes, such as chilling tanks on the Sharples dewaxing process and on buildings on which it is desired to maintain a low temperature, the ordinary construction using cork or hairfelt should be used where this material can be properly protected by asphalt. For the foundations of chilling tanks the insulating concrete has been used with much satisfaction in connection with the Sharples process.

Standardization: As the oil industry becomes older, standards for construction of all types of equipment will follow in the path of standards of products and methods of marketing. This standardization can be readily applied to the insulation and construction of oil refinery equipment. A study of this end through the good offices of the American Petroleum Institute and with the co-operation of the oil companies themselves will undoubtedly result in a larger net for all companies.

There are under consideration newer types of equipment and newer methods of insulation of that equipment and it is hoped that these new methods may be described in a future issue because these methods will offer new ways of overcoming some of the very difficult conditions which are now staring the refiner in the face.

CHICAGO, Oct. 25.—E. E. Jensen, formerly head of the lubrication department of the Independent Oil Men of America and more recently identified with Acme Petroleum Co., in the tank car sales department, recently resigned from his situation with Acme and accepted a position as head of the jobbing department of the Swan-Finch Corp., 524 South Dearborn street, Chicago.



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Confusing Array of Hurdles Confronts Those Who Would Cut Prices

By Ward K. Halbert
N. P. N. STAFF WRITER

CHICAGO, Oct. 20 RECENT developments in the retail gasoline market under the terms of the new quantity discount agreement adopted Oct. 1 by the Standard Oil Co. of Indiana are almost new to the industry in this territory. There are a few points in the territory now where the tank wagon price is higher than the service station price.

As a general thing these situations are brought about by "side track stations," i.e., filling stations with bulk storage on the lot, being adjacent to a railroad on one side and a well-traveled street on the other. Such dealers are retailers who buy direct from the refinery and do not operate tank wagons. It was a dealer of this kind who elected to sell for less than his competitors who precipitated a price war in Flint, Mich., recently.

The new Q. D. A. is elastic enough now to cope with a price war started by a side track station without involving much territory. All the side track dealer can cut is the retail price. He operates no tank trucks so he cannot cut the tank wagon price. The major operators, to meet the situation, also cut the retail price but leave the tank wagon price alone.

Under the new arrangement the retail dealers of any jobber in a town do not buy on the tank wagon price. They are under contract (Q. D. A.) and their contract price is figured from the retail price. The price they pay for gasoline goes up and down with the retail price but their margin never changes unless their volume of business changes. The big companies' dealers are not hurt when the retail price is reduced.

The tank wagon price, standing alone as it does, applies to people who buy from tank wagons but are not on contract. Mostly such buyers are farmers. Thus the tank wagon price is the same no matter how the retail price fluctuates. In Murphysboro, Ill., for instance, the service station price is 14 cents a gallon but the tank wagon price is normal, 15.2 cents. If the farmers want to enjoy the price war quotation they have to drive to town to get their gasoline.

A condition much like the one just described, developed in Flint, Mich., on Oct. 11. A side track station posted a special retail price lower than the general level. Standard Oil Co., and other major marketers in town met the new retail price and let the tank wagon price stand. Tank wagon and filling station prices were the same for two days. On Oct. 13 the price war was halted by an injunction and both tank wagon and service station prices restored to normal.

The injunction was unusual. Some Independent jobbers in Flint went into court with their attorney and charged conspiracy between the Standard Oil Co., and some others, (including the side track station operator) to reduce the price below a profitable level where the others could do business. A district judge in Flint granted a temporary restraining order and the matter has not come up for a hearing on its merits yet.

In Chicago some dealers are having a hard time to convince themselves that the margins of 1923 to 1927 have vanished. There is a great deal of shopping around for cheap gasoline but most of it is in vain. No well-known brands of gasoline can be had at less than the published Q. D. A. prices and bargain prices on nameless goods are hard to find. Moreover, when bargains are found they are not large enough to be attractive.

Independent jobbers in Chicago report that they are solicited almost daily by filling station owners and garagemen to sell their gasoline at something less than the published scale. Nearly always such dealers, asking for a cut price, tell the jobber about some competitor who is taking liberties with the Q. D. A. But the standing answer of the oil jobber is, "I do not believe it. Show me the proof." And the proof is never brought.

Rumor has it that nameless gasolines can be bought for prices slightly below the published ones, and oil men do not generally deny it. But such small reductions in cost are not enough to justify any dealer giving up a well-advertised brand. In Chicago, brand means a great deal at a privately owned station.

At present, U. S. Motor gasoline costs 12 cents a gallon on Chicago side track in car lots. The service station price in town is 17 cents. The maximum discount under that on Q. D. A. is 3 cents. That means that the total marketing spread is 5 cents, of which the jobber gets 2 cents and the filling station 3 cents. Obviously neither one can cut prices without handling an inferior quality.

If some dishonest jobber wanted to handle a cheap gasoline or kerosene blend, he could cut prices a little but would have a hard time finding customers. Dealers selling nameless brands at cut prices want to keep their quality up to keep their volume up, so it behooves them to have side track station.

Of course a cheap blended gasoline might be dumped into the tank of some dealer who had the brand of some regular oil company on his pump, but he could not get away with it long for two reasons:

First, gasoline can't be delivered at night by union drivers without overtime wages. That takes some of the profit out of the enterprise. If it should be done with a non-union driver it would not last long. The union is strong in Chicago and, as the union men say, "It would be just too bad" for the man who tried it.

Second, if it were possible to carry on such a "bootleg" business, the dealer would soon be caught. If he is a re-seller of, say, Red Crown gasoline, the Standard Oil Co., accounting department knows very accurately how much gasoline he should take, day after day, and if his gallonage should fall off suddenly it would arouse suspicion. Such a dealer would lose his Red Crown signs.

Besides the danger of getting caught at it, it could not be profitable except in rare instances. Suppose a dealer was very small, selling between 2000 and 6000 gallons a month. If he bought enough "bootleg" gasoline to make it interesting for him he would stand a chance to slip from the second Q. D. A. bracket into the first one, and then his margin on his regular brand would be 2 cents instead of 2½ cents a gallon.

With all the hazards, financial and physical, of buying so-called gasoline from some wandering truck driver that passes a service station at night, little of it is being done. Patrick J. Berrell, head of the truck drivers' union in Chicago has stated that there never would be very much of it done. It will have to be more profitable and easier than it is now before it is done to any great extent.

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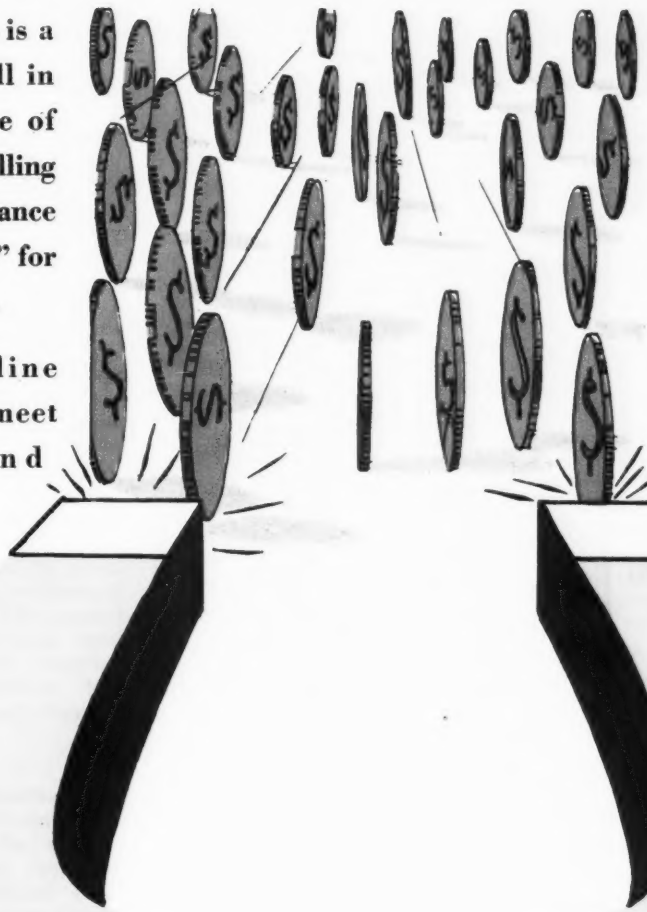

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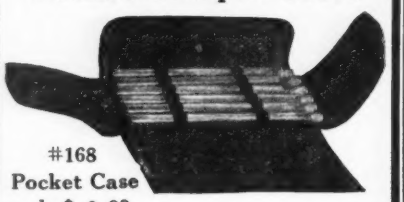

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Pocket Case
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Sturdily constructed from black cobra grain cowhide. Lined with red plush. Contains six bottles. 9"x1½".

175—This case contains eight 9-inch bottles and six grease jars. Made from black cobra grain cowhide, lined with red plush. Has two serviceable nickel slide catches, price including metal capped corks, only $7.00

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"Know Your Industry"

Institute Publishes Pertinent Booklet Of Facts About Oil for Oil Company Employees

CLEVELAND, Oct. 29

TO INCREASE the knowledge of employes concerning the industry in which they work the American Petroleum Institute has published a 32-page booklet entitled "Information and Your Job." The booklet was designed for distribution among employes by oil companies.

A picture of the industry's activities and scope with data as to its present size and importance are given. Following are a few excerpts from the booklet:

"The American oil industry within 70 years has grown from a single well 69½ feet in depth, producing a few barrels of oil per day and representing an investment of less than $2000, to an industry, which in the United States is exceeded in magnitude only by agriculture and the railroads.

"Seven hundred forty thousand wells have been drilled between 1858 and 1928.

"Perhaps no present day industry is more characteristically American than that of petroleum. Over 70 per cent of the world's petroleum industry is in this country. Roundly, $11,000,000,000 is invested in it—roughly divided as follows:

Production	$5,000,000,000
Refineries	3,000,000,000
Marketing	1,200,000,000
Pipe lines	1,000,000,000
Tank Steamers	500,000,000
Tank cars	300,000,000

"Almost no one, even people who have spent their lives in it, realizes how stupendous this business is, nor at what an amazing rate it has expanded these last few years.

* * *

"Percentage of returns on net worth of automotive as compared with oil companies:

Year	Automotive	Oil
1913	50.4%	18.1%
1914	41.9	7.6
1915	34.7	11.7
1916	46.0	19.9
1917	40.6	16.2
1918	18.5	14.8
1919	28.8	10.7
1920	8.1	14.7
1921	3.8 loss	4.3
1922	29.2	7.2
1923	16.1	5.6
1924	14.4	7.2
1925	16.5	10.8
1926	18.6	10.9
1927	13.7	4.9

Note: Net earnings of one large company not available during years 1920-1927 inclusive, due to change in method of reporting. Therefore, percentage figure covers only increase in surplus for this company during those years."

* * *

"Major Trends: There is nothing static about the oil industry. Something which can be identified as a major trend is always operating to give it variety and to effect change which often proves revolutionary. In fact the oil industry is constantly in the state of flux and adjustment through necessities very often identified with growth. The principal economic forces involved are, of course, those of supply and demand. It is impossible to get away from these forces. At the same time there have been and are other factors, fundamentally economic or which have direct economic bearing, writing significant changes in petroleum history."

* * *

"Opportunities for the Individual: There are no satisfactory data on the number of people in the petroleum industry; it has grown too fast, but it is estimated that there are approximately 1,100,000 officials and employes. To this must be added operators of filling stations and roadside gasoline pumps, of which the number is harder to estimate, but is placed conservatively around 225,000. Finally, stock and bond holders, owners of royalties, etc., are estimated at 1,500,000. A great army, many of them with their families wholly dependent on the oil industry for their livelihood!

"Those who are contributing in the successful effort of the petroleum industry to meet responsibilities dictated by the world's need for oil may well derive the satisfaction that comes from rendering service to mankind. Directly, individual contributions to this service are made through the application of business and scientific acumen to the best interests of the units that make up the petroleum industry. The industry always has and still does offer opportunities for growth for the individual comparable to its physical expansion."

* * *

"What Cracking Has Accomplished: Cracking was first applied commercially only about 15 years ago. Before the development of cracking gas-

oline was derived solely from crude oil by straight refining.

"By cracking fuel oil and gas oil derived from the crude oil in straight refining, a new prolific source of gasoline supply has been added and has thereby decreased the drain on the crude oil sources. On straight refining crude oil yields on an average about 24 per cent gasoline. To have met the total gasoline demand in 1927 with gasoline derived solely from straight refining would have required 1,425,000,000 barrels of crude oil. The demand was actually met by about 850,000,000 barrels. The difference amounted to 575,000,000 barrels of crude oil.

"In recent years new types of furnaces, pipe stills, intricate fractionating equipment, many kinds of heat exchangers and other mechanical perfections have entered into the finding of petroleum. Great advances have been made in studies involving the chemistry of petroleum and every refinery has its chemical laboratory.

"The industry has built up a new large source of gasoline in equipping leases with natural gasoline plants in connection with the saving and utilization of natural gas and the application of the gas-lift system in oil recovery."

* * *

"Competitive Force Not Always Economically Sound: The competitive force which has had free play in the oil industry has not always proved economically sound. Many years ago a court laid down what at that time was the only practicable rule, viz., let each take what he can get from the holes he drills on his own ground. Let each man's protection against his neighbor lie in his own diligence. This rule has never been changed and is still in force.

"Obviously this leads to competition of the keenest sort. When we start with the fundamental fact that Nature did not store our oil resources in glass pockets in order that they might be seen we have the root of a type of competition dictated not merely by economic law but by Nature herself. Had Nature been indulgent she would have put the oil in nice little compartments corresponding with the fences on each man's land. As it is, an oil pool being a mere manifestation of Nature disregards property lines which are the work of man. Nature has no metes and bounds. No surveying instruments are included in her equipment. Oil pools may be limited in area below ground from a few acres to many square miles. Their surface is often a checkerboard of ownership ranging from the size of an ordinary farm to that of a city lot."

Information as to price of these booklets may be obtained from the American Petroleum Institute, 250 Park avenue, New York City.

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Keep the new customer . . .
Profit building business can be got in only one way—by making the first sale a satisfied customer.
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Thoroughbred quality such as distinguishes Cushing Petroleum Products makes a friend of every customer. No Jobber or Dealer who looks to the cash drawer for greater profits will fail to make their acquaintance—drop a line to Cushing today No obligation.
A wire or letter will bring quotations.
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64-66-375 E. P. Aviation
41-43 W. W. Kerosene
36-38 Straw Distillate
32-36 Gas Oil Uncracked
22-26 Fuel Oil (Cushing or
24-26 Fuel Oil Blackwell)
General Offices: CUSHING, OKLA.
CUSHING
Refining & Gasoline Co.
Refineries At CUSHING & BLACKWELL, OKLAHOMA

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Save Your Oil, Until Sold in
BROWN OIL TIGHT TANKS
Our Double Electric Welding Process
Insures You Against Leaks.

Get Our Figures. Compare The Specifications

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Quick Starting-
Clean Burning--Anti-Knock

For snappy starting in cold weather, followed by snappy performance at high speeds, a host of motorists are now doubling their calls for CHAMPLIN Presto Gas, a specially refined gasoline with which Champlin meets the exacting demands of high-compression motors.

In addition to its quick starting feature, CHAMPLIN Presto Gas is all-burning, being entirely consumed at each explosion in the cylinder, and has anti-knock qualities equalling those of the best anti-knock gasolines.

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CHAMPLIN standards, far-famed for their perfection, are rigidly adhered to in the refining of Presto Gas. As a final precaution, each car is analyzed before it leaves the refinery. A full supply, now, will insure you against disappointing your customers. Phone, wire, or write for quotations.

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"CHAMPLIN Oils Have Always Been Good—ALL WAYS"

CHAMPLIN

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations Week Ended October 26 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended Oct. 26	Total Week Ended Sept. 28
Plants Reporting	12	29	29	12	82	82
Da. Av. Cap. (bbls.)	92,000	160,200	130,100	54,900	437,200	437,200
Da. Cracking Capacity	30,700	52,600	17,200	22,700	123,200	123,200
Da. Av. Crude Runs	59,102 — 8.6	113,806 + 1.1	86,648 — 0.9	60,734 — 5.2	320,290 — 2.6	360,743
Da. Av. Other Oils	806 — 27.3	10,258 + 46.4	6,207 — 7.1	2,734 + 64.6	27,260 + 3.1	19,374
GASOLINE—Gallons						
Stocks, Oct. 19	7,692,000	26,870,000	15,814,000	5,297,000	55,673,000	47,261,000
Prod. 10-19 to 10-26	9,277,000 — 13.5	19,535,000 + 2.5	10,370,000 + 2.6	6,024,000 + 0.2	45,206,000 — 1.5	47,227,000
Ship. 10-19 to 10-26	10,357,000 + 7.4	18,213,000 + 6.1	9,163,000 + 2.2	5,868,000 — 0.7	43,601,000 + 4.6	47,362,000
Stocks, Oct. 26	6,612,000 — 14.0	28,192,000 + 4.9	17,021,000 + 7.6	5,453,000 + 2.9	57,278,000 + 2.9	47,126,000
Ratio Sales to Prod.	111.6%	93.2%	88.4%	97.4%	96.4%	100.3%
KEROSENE—Gallons						
Stocks, Oct. 19	7,267,000	4,215,000	1,995,000	697,000	14,174,000	12,963,000
Prod. 10-19 to 10-26	1,685,000 — 9.7	2,351,000 + 11.2	1,566,000 — 5.4	269,000 + 9.3	5,871,000 — 0.2	7,431,000
Ship. 10-19 to 10-26	1,719,000 + 2.3	1,889,000 — 10.3	1,525,000 — 7.9	604,000 + 77.6	5,737,000 — 0.8	7,727,000
Stocks, Oct. 26	7,233,000 — 0.5	4,677,000 + 11.0	2,036,000 + 2.1	362,000 — 48.1	14,308,000 + 0.9	12,667,000
Ratio Sales to Prod.	102.0%	80.3%	97.4%	224.5%	97.7%	104.0%
STOVE DISTILLATE—Gallons						
Stocks, Oct. 19	1,942,000	3,951,000	567,000	50,000	6,501,000	6,063,000
Prod. 10-19 to 10-26	89,000 — 81.7	1,028,000 + 6.9	213,000 — 19.9	99,000 — 2.0	1,429,000 — 21.3	1,184,000
Ship. 10-19 to 10-26	212,000 + 61.8	682,000 + 87.9	113,000 — 18.1	94,000 + 13.3	1,101,000 + 54.0	971,000
Stocks, Oct. 26	1,819,000 — 6.3	4,297,000 + 8.8	667,000 + 17.6	55,000 + 10.0	6,838,000 + 5.0	6,276,000
Ratio Sales to Prod.	238.2%	66.3%	53.1%	94.9%	77.0%	82.0%
GAS OIL—Gallons						
Stocks, Oct. 19	6,937,000	37,336,000	8,602,000	6,540,000	59,415,000	54,971,000
Prod. 10-19 to 10-26	1,640,000 — 11.1	966,000 — 28.3	2,135,000 — 18.8	2,131,000 — 16.0	6,872,000 — 17.7	8,530,000
Ship. 10-19 to 10-26	1,643,000 + 1.9	1,068,000 — 65.0	1,308,000 — 14.1	2,121,000 — 7.6	6,140,000 — 27.6	8,041,000
Stocks, Oct. 26	6,934,000 — 0.04	37,234,000 — 0.3	9,429,000 + 9.6	6,550,000 + 0.2	60,147,000 + 1.2	55,460,000
Ratio Sales to Prod.	100.2%	110.6%	61.3%	99.5%	89.3%	94.3%
FUEL OIL—Gallons						
Stocks, Oct. 19	27,796,000	58,345,000	71,386,000	22,064,000	179,591,000	167,341,000
Prod. 10-19 to 10-26	6,577,000 — 3.5	9,570,000 + 27.8	11,080,000 + 1.7	9,591,000 — 1.9	36,818,000 + 5.2	38,035,000
Ship. 10-19 to 10-26	4,512,000 — 35.1	9,293,000 + 23.7	10,727,000 — 3.3	8,691,000 — 13.7	33,223,000 — 6.8	35,730,000
Stocks, Oct. 26	29,861,000 + 7.4	58,622,000 + 0.5	71,739,000 + 0.5	22,964,000 + 4.1	183,186,000 + 2.0	169,646,000
Ratio Sales to Prod.	68.6%	97.1%	96.8%	90.6%	90.2%	93.9%

Gasoline Produced by Various Methods, Week Ended October 26

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	5,855,000	63.1	11,956,000	61.2	8,054,000	77.7	3,144,000	52.2	29,009,000	64.2
Cracked	2,814,000	30.3	6,266,000	32.1	1,835,000	17.7	2,161,000	35.9	13,076,000	28.9
Natural	608,000	6.6	1,313,000	6.7	481,000	4.6	719,000	11.9	3,121,000	6.9
Total	9,277,000		19,535,000		10,370,000		6,024,000		45,206,000	

+ or — columns are % change from previous week.

Gasoline Shipments Rise; Stocks Gain Halted

Staff Special—By Telegraph
TULSA, Oct. 30

SHIPMENTS of gasoline from 82 Mid-Continent refineries increased nearly 2,000,000 gallons the week ended Oct. 26, according to reports to NATIONAL PETROLEUM NEWS. Total shipments were 43,601,000 gallons as compared with 41,684,000 gallons the week ended Oct. 19.

The increase in gasoline shipments was general except for north Louisiana and Arkansas where there was a loss in business of only 40,000 gallons.

Kansas refiners reported an increase of 700,000 gallons or 7.4 per cent in gasoline shipments. Oklahoma refiners reported an increase in shipments of 1,000,000 gallons or 6.1 per cent. The increase in Texas was only 200,000 gallons or 2.2 per cent.

The increase in shipments was made

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Oct. 26. Change in stocks figured from Sept. 28.

GASOLINE

	Gallons
Production	181,763,000
Shipments	173,346,000
Net change in stocks	+8,417,000
Ratio sales to production	95.4%

KEROSENE

	Gallons
Production	23,888,000
Shipments	23,527,000
Net change in stocks	+361,000
Ratio sales to production	98.5%

STOVE DISTILLATE

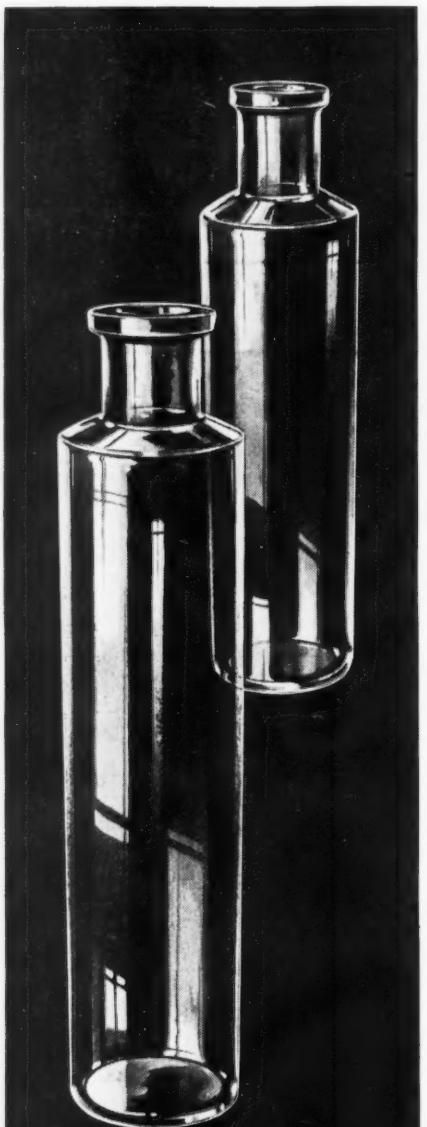
	Gallons
Production	5,671,000
Shipments	4,937,000
Net change in stocks	+734,000
Ratio sales to production	87.1%

GAS OIL

	Gallons
Production	33,586,000
Shipments	29,871,000
Net change in stocks	+3,715,000
Ratio sales to production	88.9%

FUEL OIL

	Gallons
Production	136,121,000
Shipments	135,078,000
Net change in stocks	+1,043,000
Ratio sales to production	99.2%



IF—

there is a relationship between calls and sales, and it is generally conceded that such is the case, then the more calls you make the greater your sales will be.

Increase your number of calls without increasing your sales force. Let these truthful, sturdy, brilliant sample oil bottles take your sales story direct to a greater number of prospects through the mail. Often they are just as effective as a personal call. Size 2-4-8 ounce. Sample on request.

Illinois Glass Co.
ESTABLISHED 1873
Alton Ill.

without an increase in gasoline production. Total production was reported at 45,206,000 gallons as compared with 45,893,000 gallons the previous week, a fall of 1.5 per cent. Kansas refiners reduced their gasoline production sharply but other districts reported minor increases.

The increase in gasoline shipments while production was almost unchanged caused an increase in stocks of only 1,605,000 gallons as compared with a stock increase of 4,200,000 gallons the week ended Oct. 19. Total stocks Oct. 26 at the 82 plants were 57,278,000 gallons. At the current rate of shipments stocks represented eight days' supply. A year ago gasoline stocks totaled 63.542,000 gallons, approximately 6,250,000 gallons more than at the present time.

Kerosene business rocked along on an even keel at about the rate which has been shown throughout the month. Production for the week totaled 5,871,000 gallons as compared with 5,882,000 gallons the previous week. Shipments were 5,737,000 gallons as compared with 5,781,000 gallons. Stocks Oct. 26 totaled 14,308,000 gallons, an increase of 134,000 gallons.

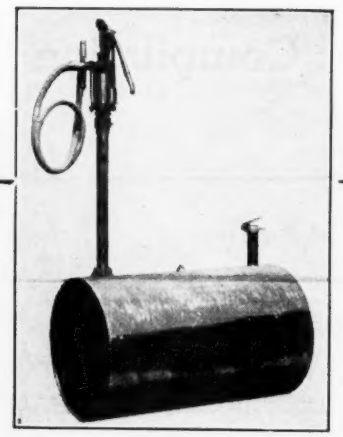
Continuation of mild weather kept distillate business at a low level. Reporting refiners showed shipments of 1,101,000 gallons and production at 1,429,000 gallons. Stocks Oct. 26 were 6,838,000 gallons which is a little less than half the volume of this material held at the opening of the season last year.

Gas oil production totaled 6,872,000 gallons and shipments 6,140,000 gallons. Stocks were increased 730,000 gallons to 60,147,000 gallons. A year ago the same group of plants held in storage 75,045,000 gallons.

Shipments of fuel oil fell 2,400,000 gallons to 33,223,000 gallons. At the same time production was increased nearly 2,000,000 gallons at the expense of gas oil production to 36,818,000 gallons. Stocks of fuel oil Oct. 26 totaled 183,186,000 gallons, an increase of 3,595,000 gallons.

A year ago the same group of plants held 103,717,000 gallons of fuel oil, approximately 80,000,000 gallons less than at present. Last year the Texas group of plants held 31,701,000 gallons which has been increased to 71,739,000 gallons, accounting for half of the total increase for the year. The Arkansas and Louisiana group has added 10,000,000 gallons to storage during the year. The Kansas group has added approximately 15,000,000 gallons to storage and the Oklahoma group has added about 12,000,000 gallons.

Clyde Ellwood, general sales manager, Axelson Machine Co., Los Angeles, was in Tulsa attending the petroleum exposition. Leaving there, he will visit eastern points. Mr. Ellwood expects to attend the A. P. I. Convention in Chicago, in December.



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Here is a tank and pump unit that inexpensively solves the storage problem on the farm, winning and holding for you profitable bulk business.

Sturdily built, 120-gallon tank of 12-gauge, non-rusting steel. Two-hundred gallon tank can also be supplied. Electric arc-welded seams that won't open. For either above or underground installation, but specify which.

Pump is provided with 8-foot hose. Non-measuring. Unit is complete. Nothing to get out of order. Only specialization could produce such a tank at its low price. *Write for full details.*

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Oakite Service Men, cleaning specialists, are located in leading industrial centers of U. S. and Canada.

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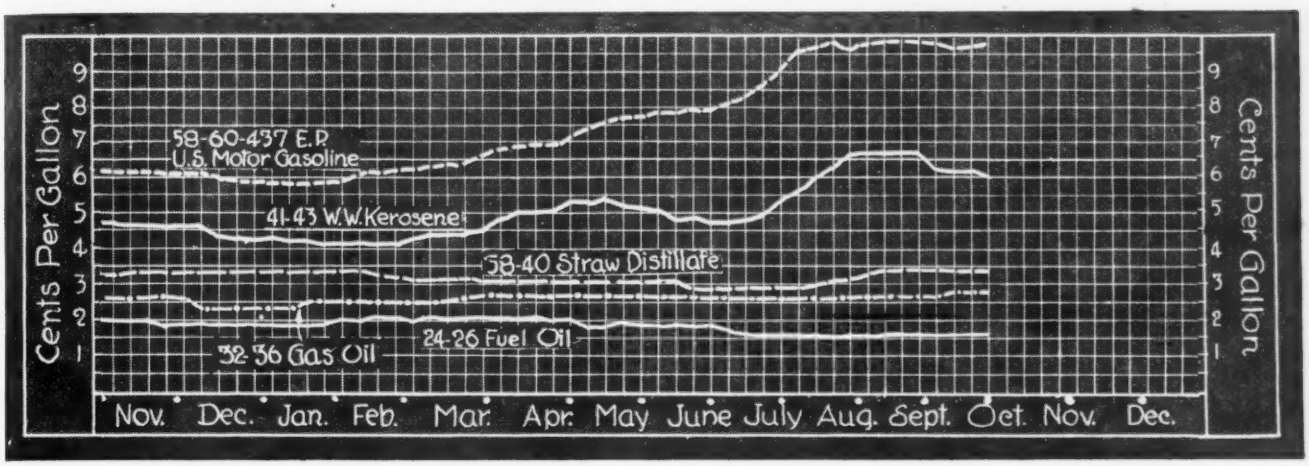
OAKITE
Industrial Cleaning Materials and Methods

Current Prices of Principal Mid-Continent Refined Products



Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

Committee Is Named to Study Research Program

CLEVELAND, Oct. 29.—President E. M. Lyons of the National Petroleum Association has named a committee to study the possibilities of inaugurating a cooperative program of research backed by members of the association. The proposal that a cooperative research program be undertaken was offered at the fall meeting of the association at Atlantic City last month.

The committee on scientific research appointed by President Lyons consists of: G. C. Davison, Tri-State Refining Co., chairman; P. S. Tarbox, Independent Refining Co., and H. H. Greene, Kendall Refining Co. The following have been invited to serve as an advisory committee: E. M. Keeley, Crew-Levick Co.; Fayette B. Dow, general counsel of the National Petroleum Association; D. G. Brandt, research engineer, Henry L. Doherty & Co.; H. S. Bell, refinery engineer; R. C. Osterstrom, chief chemist, Pure Oil Co.; R. D. Maiser; and Paul Truesdell, NATIONAL PETROLEUM NEWS.

A meeting of the committee has been called at the headquarters of the National Petroleum Association in Washington Nov. 8.

Will Meet With Standards Committee

TULSA, Oct. 29.—S. F. Pickering, representative of the U. S. Bureau of Standards, will come to Tulsa Oct. 31 to meet with the gas testing committee of the Natural Gasoline Association. During his stay in the Mid-Continent, Mr. Pickering will make a preliminary survey of gas testing methods which have been built up by the gasoline and natural gas industries for the purpose of determining what additional work will be necessary by the bureau before a set of standards can be established.

Plans Formed to Fight for Right To Use Radio in Our Industry

Staff Special

TULSA, Oct. 29

PLANS for pushing the oil industry's claims for the use of radio for oil finding and communication were forwarded by a series of conferences in Tulsa this week. Fayette B. Dow, Washington counsel for the oil companies, and Prof. C. M. Janski, Jr., University of Minnesota radio engineer, were both in Tulsa working on the two cases to be heard in November.

The first hearing before the radio commission is set for Nov. 13 at which time the industry will present its case for the use of radio for geophysical exploration for oil. In this case the industry will seek to prove that it must abandon geophysical methods if the use of the radio is denied. It will assert also that such small power will be required that no interference will be set up with other use of the same wave bands.

The hearing on the industry's use of radio for point to point communication is scheduled for Nov. 20. At this hearing the industry is expected to abandon any request for the use of radio between offices of oil companies where land wire service is available. The industry will, however, insist that it should have the right to set up receiving and sending stations in isolated fields as they are discovered where no land wires are available. The great aid of radio in communications with such fields as those in the Panhandle and in West Texas will be pleaded.

Companies interested in using the radio have determined to send company technologists to Washington as witnesses to assist Prof. Janski and Mr. Dow in presenting the cases.

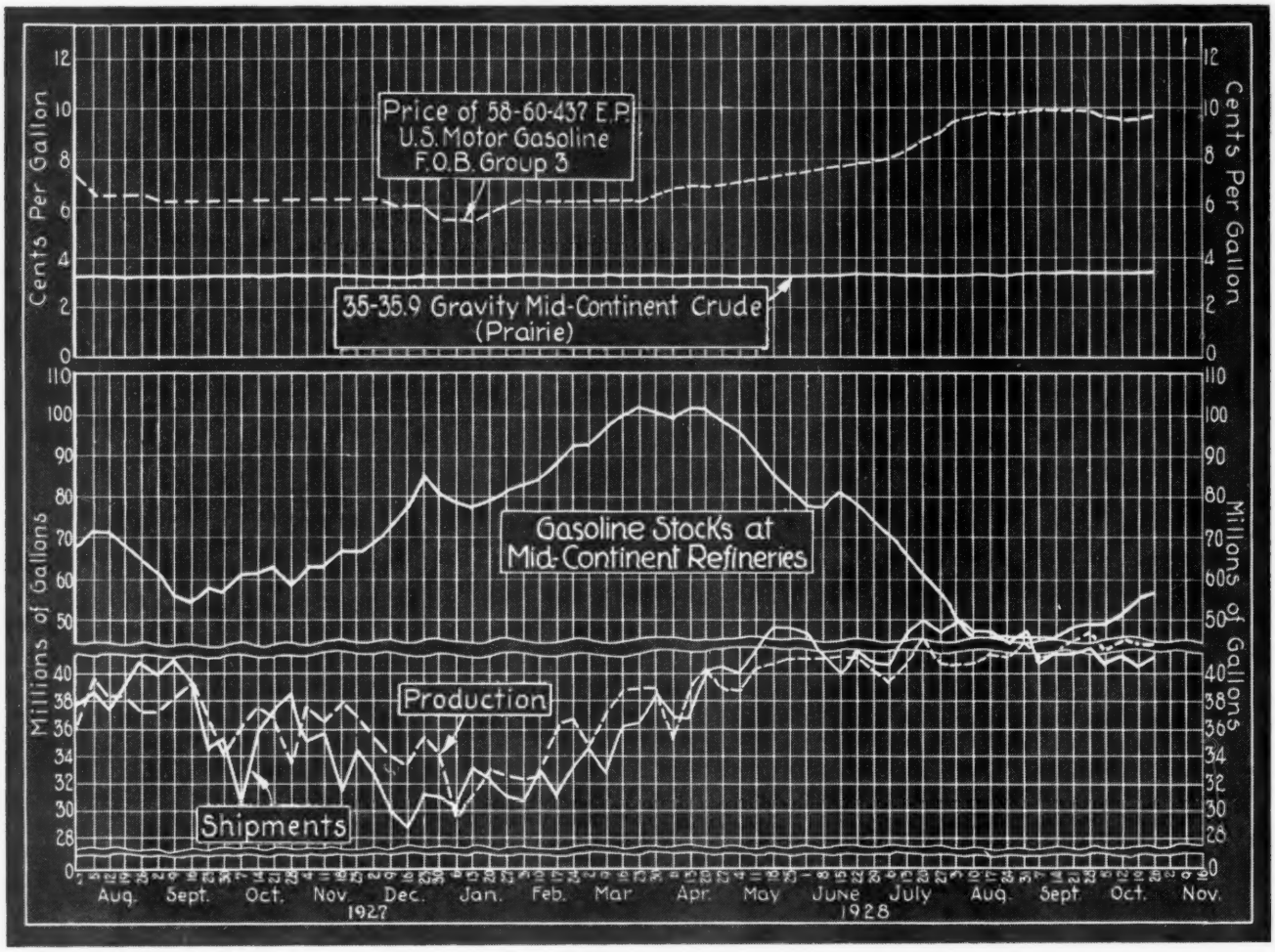
Cross Cracking Plants

THE M. W. KELLOGG CO.
7 Dey Street - New York

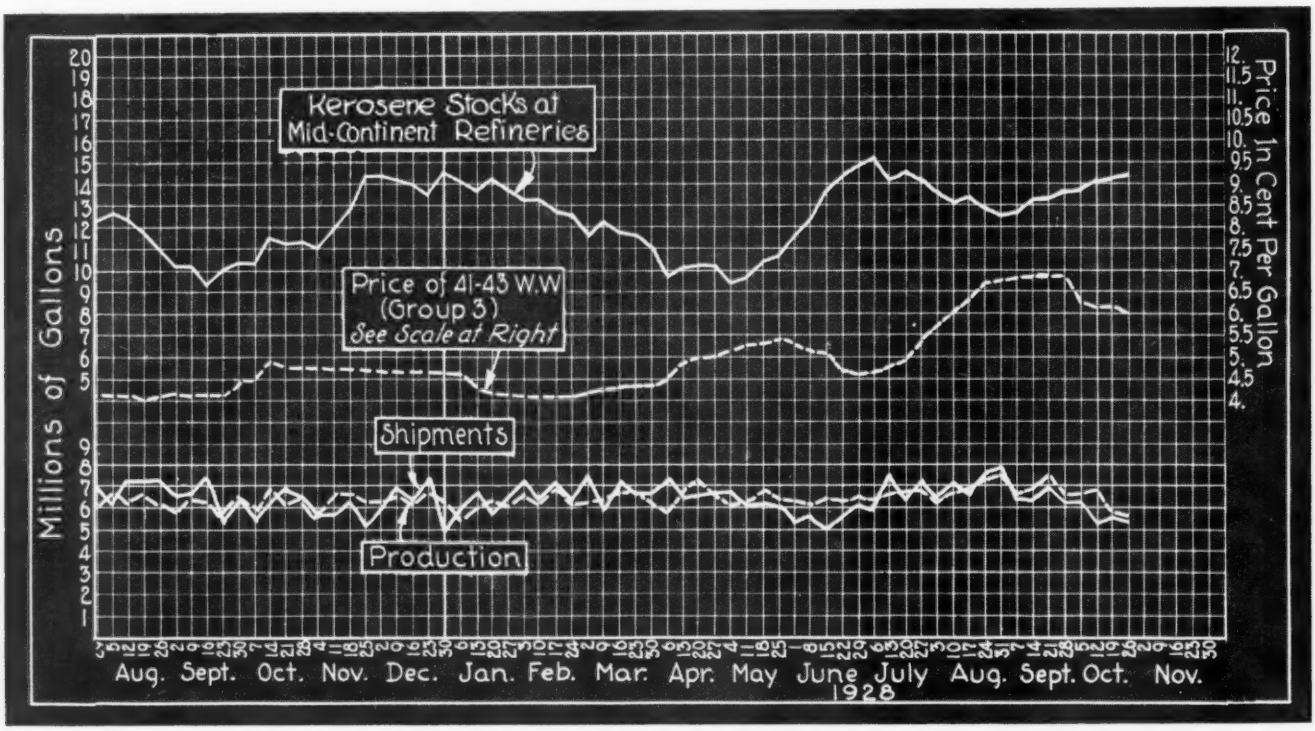
Houston, Texas.....1514 Petroleum Bldg.
San Francisco, Cal.....444 Market St.
Los Angeles, Cal.....329 Petroleum Sec. Bldg.

Barometer of Mid-Continent Refinery Market—Week Ending October 26

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 82 Plants to National Petroleum News


Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at Mid-Continent Refineries
Production
Shipments
Millions of Gallons
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar Apr. May June July Aug. Sept. Oct. Nov.
1927
1928

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on the opposite page


Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W. (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price In Cent Per Gallon
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.
1928

Keeney Oil Co. Inc. Expands Scope

NEW YORK, Oct. 29.—O. P. Keeney, president of the Keeney Oil Co., Inc. 11 Broadway, New York city has announced that the export business of this company is being expanded under the direction of its newly elected vice-president, J. J. Harvey.

Mr. Harvey resigned from his position as manager of the export division of the Beacon Oil Co. It is understood that the Beacon Oil Co. has decided to discontinue sales activities on lubricants in foreign fields.

Mr. Harvey has had a successful extensive experience in the export of lubricating oils, having started and developed the export division of the Beacon Oil Co. and recently having returned from an extensive trip through the South American and European export markets.

Mr. Harvey in his new connection will concentrate on the export business of the Keeney Oil Co., Inc., which will continue its representation of the Shaffer Oil & Refining Co. and its other previous activities.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

33952.—**Lubricating oils,** Olomouc, Czechoslovakia, purchase and agency.

34030.—**Paraffin,** Valparaiso, Chile, agency.

34015.—**Refined machine oils and light filtered cylinder oil,** Kovno, Lithuania, purchase.

34017.—**Petroleum products** (unspecified) Paris, France, agency.

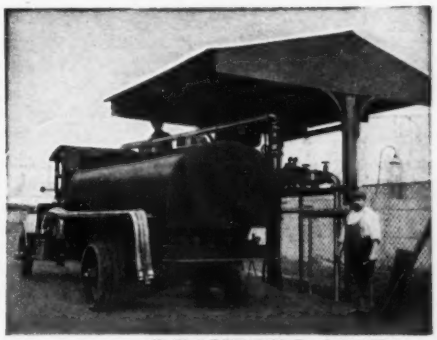
Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

"UNIVERZOIL" No. 270,622. W. H. Barber Company, Minneapolis, Minn. For lubricating oils and greases.

A PICTURE OF A WATER FALLS (Presumably Niagara) No. 271,278. Swan-Finch Oil Corp., New York City. For lubricating oils and greases.

"TOP-CY OIL" No. 267,807. Travis O. Smith, Denver, Colo. For lubricating oils and greases.



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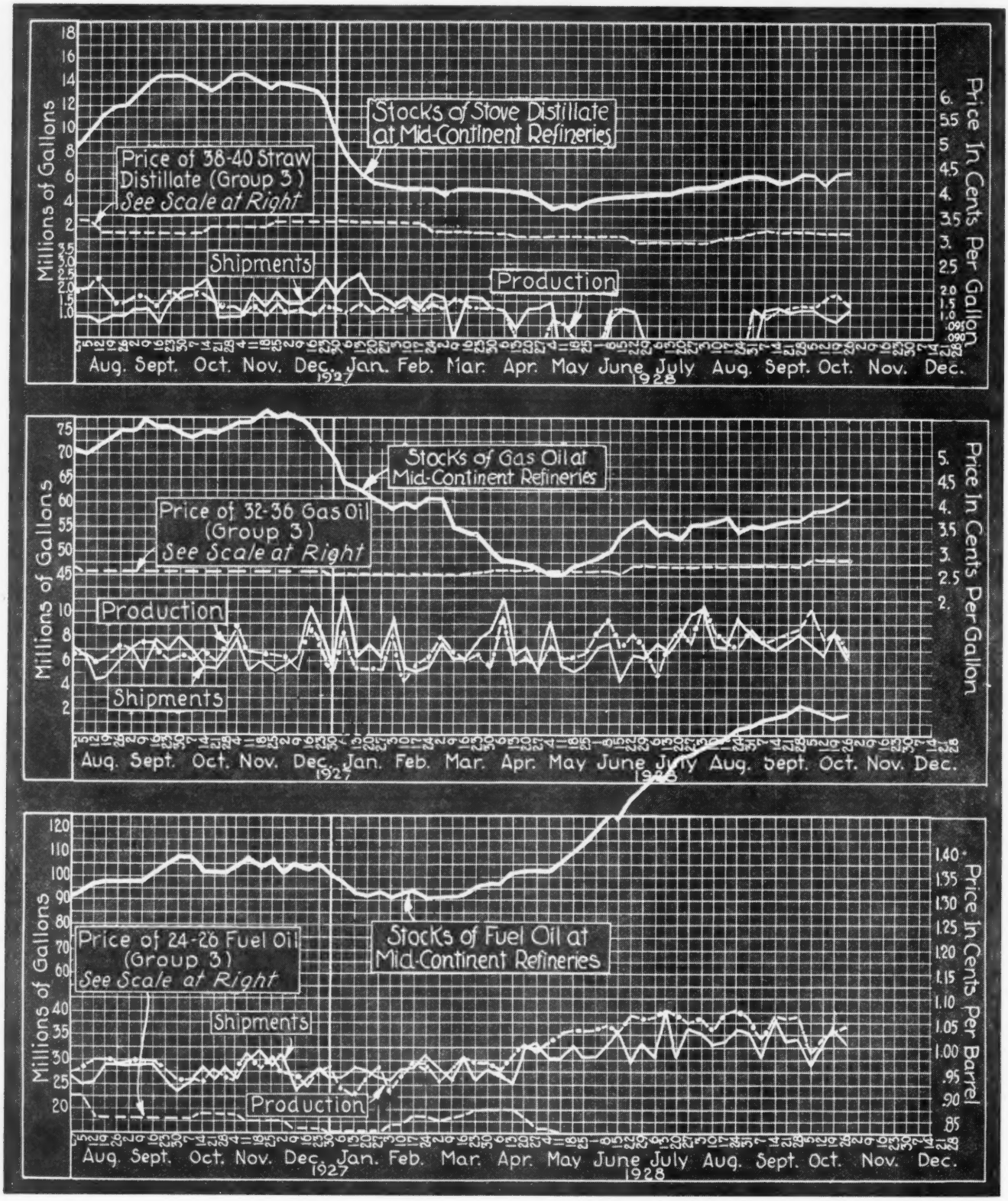
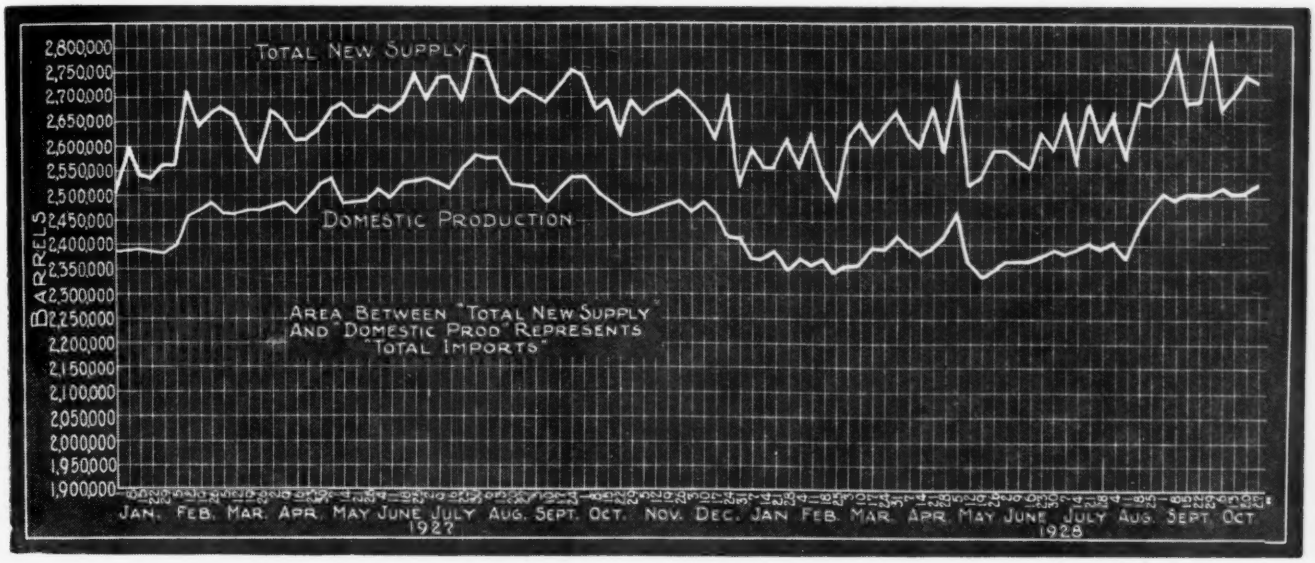
Barometer of Mid-Continent Refinery Market
Week Ending October 26

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 82 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928
Millions of Gallons
Price In Cents Per Barrel
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Stocks of Fuel Oil at Mid-Continent Refineries
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Oct. 27	Oct. 20
Production east of Rockies	1,888,500	1,888,600
Decrease		100
Total production in U. S.	2,523,700	2,504,400
Increase		19,300
Crude oil imports	213,857	249,000
Decrease		35,143
Total crude supply	2,737,557	2,753,400
Decrease		15,843

OKLAHOMA

	Oct. 27	Oct. 20
North Braman	2,700	2,850
South Braman	1,450	1,400
Blackwell	3,400	3,500
Huobard	2,400	2,450
Thomas	1,100	1,050
Tonkawa	11,950	12,000
Garber	7,400	7,550
Burbank	27,000	27,500
Osage, outside Burbank	26,500	26,900
Cushing	20,150	20,100
Yale Jennings	7,850	7,650
Davenport	1,750	1,750
Bristow-Slick	20,700	20,800
North Okmulgee	14,500	14,550
Pearson	2 100	2,150
Lyons-Deaner	4,600	4,600
St. Louis	126.150	125,500
Allen Dome	23,400	23,450
Cromwell	8,850	8,700
Papoose	4,000	3,950
Wewoka	5,450	5,450
Seminole	42,600	42,600
Bowlegs	51,350	50,200
Searight	11,650	11,750
Little River	127.300	131 150
Earlsboro	79,400	80,900
Duncan district	7.550	7,500
Graham	5,000	5,200
Fox	1,600	1,600
Healdton	13,750	13,750
Hewitt	9,300	9,500
Scholem Alechem	14,500	14,800
Others	50,650	50,550
Total, Oklahoma	738,050	743,350
Decrease		5,300

KANSAS

Greenwood County	25,700	25,900
Florence-Covert	950	950
Peabody-Elbing	3,250	3,250
Eldorado-Towanda	13,000	13,000
Augusta-Fox-Bush	3,250	3,250
Rainbow Bend	1,400	1,400
Russell	4,300	4,500
Churchill	8,200	8,350
Oxford	8,150	8,800
Others	29,000	28,900
Total, Kansas	97,200	98,300
Decrease		1,100

NORTH LOUISIANA

Homer	4.200	4,150
Haynesville	5,800	5,800
Caddo, light	9.000	9,050
Caddo, heavy	3,050	2,900
De Soto, Red River	4,000	3,950
Elm Grove	550	550
Bellevue	850	850
Cotton Valley	4,250	4,450
Urania	6,300	6,350
Pleasant Hill	550	600
Total North Louisiana	38,550	38,650
Decrease		100

ARKANSAS

El Dorado	5,200	5,250
Champagnolle	11,600	10,400
Smackover, light	7,150	7,250
Smackover, heavy	55,050	55,250
Stephens	1,050	1,050
Nevada	1,350	1,200
Lisbon	1,750	1,800
Others	100	100
Total, Arkansas	83,250	82,300
Increase		950

TEXAS (Outside Gulf Coast)

Panhandle District

Hutchinson County	30.800	30,600
Carson County	6,150	6,400
Gray County	28,650	25,400
Wheeler County	900	800
Others	2,150	2,100
Total, Panhandle District	68,650	65,300
Increase		3,350

North Texas

Burkburnett	9,650	9,550
Electra	12,750	12,900
Iowa Park and K-M-A	3,600	3,550
Wilbarger	33,600	35,000
Archer County	19.500	19.300
Montague-Cooke	10,400	10,500
Others	600	600
Total, North Texas	90,100	91,400
Decrease		1,300

West Central Texas

Stephens County	7,000	7,000
Eastland-Desdemona	6,950	6,850
Brown County	10,900	11,000
Coleman County	4,100	3,800
Callahan County	3,500	3,400
Shackleford County	10,700	10,650
Young County	8,600	8,450
Throckmorton County	800	800
Palo Pinto County	400	400
Jack County	1,500	1,400
Others	700	700
Total, West Central Texas	55,150	54,450
Increase		700

West Texas

Jones County	3,850	4,000
Mitchell and Scurry Counties	2,800	2,850
Howard County	31,700	28,800
Reagan County	17,700	17,700
Crane and Upton Counties	55,200	55,050
Crockett County	2,900	2,900
Pecos County	74,000	71,800
Winkler County	146,000	152.250
Others	1,500	1,500
Total, West Texas	335,650	336,850
Decrease		1,200

East Central Texas

Mexia	6,600	6,600
Currie	550	550
Richland	500	500
Wortham	1,600	1,600
Corsicana-Powell	9,800	9,800
Nigger Creek	700	700
Others	2,450	2,200
Total, East Central Texas	22,200	21,950
Increase		250

Southwest Texas

Luling	13,250	13,150
Lytton Springs	1,000	1,000
Somerset	700	700
Laredo District	9,000	9,100
Dale	1,000	1,100
Others	1,650	1,500
Total, Southwest Texas	26,600	26,550
Increase		50
Total, Texas—(Outside Gulf Coast)	598,350	596,500
Increase		1,850

GULF COAST

Coastal Texas

West Columbia	7,500	7,550
Damon Mound	1,800	2,200
Big Creek	2,200	2,500
Boling	1,600	1,900
Blue Ridge	7,600	6,000
Pierce Junction	11,900	12,000
Humble	3,750	3,500
Goose Creek	6,500	6,650
South Liberty	3,700	3,450
Hull	12.850	12,700
Saratoga	1,000	1,000
Batson	1,400	1,400
Barber's Hill	2,850	3,300
Sour Lake	3,200	3,200
Spindletop	38,600	36,200
Orange County	3,700	3,400
Others	3,000	3,450
Total, Coastal Texas	113,150	110,400
Increase		2,750

Coastal Louisiana

Vinton	4,200	3,100
Sulphur Dome	1,950	3,250
Lockport	3,800	3,600
Sweet Lake	2,200	2,650
Evangeline	950	900
East Hackberry	3,400	3,400
Edgerly	900	900
Sorrento Dome	700	800
Others	1,400	1,500
Total, Coastal Louisiana	19,500	20,100
Decrease		600
Total Gulf Coast	132,650	130,500
Increase		2,150

ROCKY MOUNTAIN

Wyoming

Salt Creek	40.200	39,300
Grass Creek	2.250	2,250
Elk Basin	1,050	950
Big Muddy	2,750	2,750
Lost Soldier	4,000	3,950
Rock Creek	2,500	2,600
Lance Creek	350	350
Oregon Basin	5,600	5,600
Others	5,200	5,300
Total, Wyoming	63,900	63,050
Increase		850

Montana

Cat Creek	1,500	1,550
Sunburst	8,300	8,300
Pondera	2,000	800
Others	550	550
Total, Montana	12,350	11,200
Increase		1,150

Colorado

Moffat (Craig)	1,250	1,300
Fort Collins	2,250	2 200
Florence	1,300	1,100
Others	2,500	2,650
Total, Colorado	7,300	7,250
Increase		50

New Mexico

Table Mesa		200
Hogback	500	500
Artesia	950	1,050
Rattlesnake	300	1,050
Others	150	200
Total New Mexico	1,900	3,000
Decrease		1,100
Total Rocky Mountain	85,450	84,500
Increase		950

California

Santa Fe Springs	38,200	37,000
Long Beach	190,000	186,000
Huntington Beach	51,000	52,000
Torrance	16,000	16,000
Dominguez	10,000	10,500
Rosecrans	5,000	5,300
Inglewood	28,000	28,000
Midway-Sunset	74,000	74 000
Ventura Avenue	54,000	53,500
Seal Beach	24.500	25.500
Others	144,500	128,000
Total California	635,200	615,800
Increase		19,400

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Refinery - Tank Wagon Markets

National Petroleum News

Exporters Again Keep Mid-Continent Gasolines and Kerosene Steady

Staff Special
TULSA, Oct. 27

EXPORTERS for the second consecutive week kept the Mid-Continent gasoline and kerosene markets on a stable basis. Both purchases and new inquiries were reported in Oklahoma and Texas. Jobber buying of gasolines was generally unchanged with contract shipments taking care of a good portion of the demand.

Natural gasoline advanced 0.375 to 0.625 cent a gallon. Demand was not in the form of large orders but the total purchases in small lots from all manufacturers was good. All grades were scarce.

Kerosenes showed little change except in north Texas where exporters have about cleaned up the surplus stocks. Distillates and gas oil were in fair demand at unchanged prices.

Fuel oils were quiet for spot shipment. Buying for over November has begun with quotations in line with the spot market.

Neutral oils were weaker and prices were cut 1 to 2 cents a gallon. Bright stock moved the other way, due to scarcity of goods. Wax was quiet with quotations fractionally lower for next month.

Gasolines

Export gasoline purchases of 1,500,000 to 2,000,000 gallons were reported in Oklahoma and north Texas. One Oklahoma company sold more than 1,000,000 gallons of 64-66, 375 e. p. gasoline for late December loading at the Gulf, while another export company sought a small quantity of gasoline for immediate shipment to fill out a cargo which was scheduled for loading about Nov. 5.

Two or three other exporters kept in close touch with the market and had inquiries out but in view of the buying a week or 10 days ago the north Texas refiners were in a better position and were showing some reluctance to book the business at prices offered. There is no doubt, however, that the export purchases and the new inquiries have brought considerable optimism to the entire Mid-Continent.

Domestic demand for gasolines was only fair in most quarters. The export buying in north Texas has taken those refiners almost out of the domestic market for the present, but the Oklahoma and Kansas refiners have had to look to the domestic market for their orders and a few of them report their stocks have been increasing slightly. Contract shipments have remained at comparatively good levels of the season.

Arkansas and Louisiana refiners have enjoyed a good business primarily because of a new tax law which goes into effect on Mississippi Nov. 1. The tax will be increased 1 cent, and jobbers will have to present certificates showing stocks on hand Oct. 31 and pay the additional 1 cent tax, but retail dealers are understood to be exempt from this tax. The jobbers have been filling up their retailer storage as rapidly as possible and the result has been an active demand for gasolines from refiners.

Natural Gasolines

Buyers had considerable difficulty obtaining natural gasolines for spot shipment. No large orders were reported but the small lot business was sufficient to keep virtually every manufacturer busy shipping. Some buying for over the first half of November was being done. Prices responded fractionally to the tighter market.

Manufacturers with plants in Texas have enjoyed an exceptionally good business. Demand for gasolines from eastern blenders has been heavier the past few weeks than it has for some time past. Freight rates are more advantageous from Texas to eastern points than they are from Oklahoma and the eastern buyers accordingly have been combing the field for goods. Several orders have had to be switched to Oklahoma plants due to the scarcity of goods in Texas.

Buyers along the Gulf coast also have been active purchasers, while the renewal of export gasoline buying in Texas has forced several refiners to seek natural gasolines quickly to put their gasolines in condition to move within the next few days on the export orders. Two or three exporters also have bought small lots of naturals and had the goods shipped to Gulf terminals to "pep up" some of the gasolines which has been in storage while the California refiners were getting the export business.

Kerosenes

Exporters continued to buy kerosenes in north Texas this week, and a few inquiries were sent to Louisiana and Oklahoma refiners. This buying gave the north Texas kerosenes considerable strength although prices did not move up as quickly as some of the trade had expected. Little kerosene is reported available in north Texas at present for prompt shipment.

Domestic demand showed a slight increase in Oklahoma and Kansas but not sufficient to keep shipments even with production. A few Kansas and Oklahoma refiners said they continued to increase their stocks slightly. The Louisiana and Arkansas refiners reported their kerosene orders had increased somewhat and they were about keeping pace with production at

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present. One refiner said that during the week of Oct. 15 to 20 he received only two or three orders for kerosene, but that during the past week his orders had averaged three cars a day.

Distillates and Gas Oil

Demand for distillates was generally unchanged from the previous week. Prices also were steady. Contract shipments were holding up well but there has not been a brisk cold snap of sufficient duration to cause a depletion of stocks in customers' tanks to the point where jobbers can order additional goods on the spot market to replace the goods taken from their own tanks to fill new orders.

Gas oils also were steady both in price and demand. Refiners are increasing their cracking operations somewhat throughout the Mid-Continent and gas oil has been in demand for this purpose as well as for industrial purposes. Low flash and low cold test gas oil is in demand for use in home burners, and the few refiners making this grade have had no difficulty in moving their production.

Fuel Oils

Inquiries for fuel oils for November delivery were being circulated by industrial users and marketers. Prices quoted were generally unchanged from the spot quotations. One company has bought a quantity of fuel made from west Texas crude, of 18-20 gravity, at 47.5 cents a barrel over November. Sales of 22-26 gravity fuel from Oklahoma sweet crude have been made at 60 cents, while some 16-18 gravity zero cold test oil has been sold at 55 cents a barrel.

Increased cracking is giving a little relief to the fuel oil market, but there still is such an abundance in storage that refiners for the most part are content to move their goods at prevailing price levels even though the normal fuel oil season is at hand when prices usually move upward.

Neutral Oils, Cylinder Stocks

Reductions in price lists for neutral oils were announced by two or three Oklahoma refiners this week. The changes affected virtually all grades made in Group 3. Some of the cuts amounted to as much as 2 cents a gallon while others were smaller.

Competition from other areas has been unusually strong the past few weeks, Oklahoma refiners report. They have lost considerable business and with the fall demand lighter and stocks still on hand they thought it advisable to meet some of this competition.

The scarcity of bright stocks, however, has caused a general advance of 1 cent a gallon. Refiners in Oklahoma have little 150-160 vis. 210 bright stock for prompt shipment or to move on new orders. The pre-

vailing quotations have been moved up to 27 cents a gallon.

Wax has been in lighter demand although prices have not lost ground materially. Quotations for 124-126 white crude scale Oct. 27 were 5 to 5.125 cents a pound as compared with 5.125 cents Oct. 20. Numerous offers to buy at 4.75 cents over November and a part of December have been received, but refiners so far have not moved any of their production at this figure, they report.

Invents Process for Making Lubricating Greases

CLEVELAND, Oct. 25.—Forrest A. Hoff, grease making specialist, has recently applied for a patent on a new method of making lime soap greases. He developed this process in his laboratory at Clarington, Pa.

He states that by the new process, lime soap greases can be produced by the use of a considerably smaller quantity of fat than is ordinarily used, thereby greatly reducing the manufacturing cost. He also claims that saponification of the fat is effected in such a manner as to prevent the formation of lime particles or lumps.

Another advantage he claims is that saving of labor results from the use of his method. In some processes, he says, an entire day is required to produce a finished batch of grease with the result that workmen have to work overtime with extra pay to empty the kettles so the equipment may be ready for use the following day. By his method, the saponification process, which takes the longest time, requires little attention and can be going on by itself during the night. Then the saponified product is ready for further work when the men go on duty in the morning.

The remaining steps of the process require but a few hours for completion so that the kettles can be emptied during the working day, Mr. Hoff says.

Another object of the process, according to the inventor, is to produce a lubricating grease of any desired consistency.

"In general," says Mr. Hoff, "the invention contemplates the treatment of lime and a fat to effect saponification of the fat, and the intimate incorporation of the saponified fat and mineral oil into a homogeneous grease. In carrying out the process, I preferably employ animal fats, although I have found that other fatty ingredients such as soy bean oil, cottonseed oil, rape seed oil and their like will do. I will just mention the fact that fatty acids may be employed but make greases dark in color and oxidize very quickly.

"This invention taken as a whole, will reduce the manufacturing cost of lubricating greases of the lime soap class from ¼ to ½-cent per pound."

Chicago Resale Market

Spot Demand Is Light

Staff Special

CHICAGO, Oct. 27

THE Chicago resale gasoline market passed a quiet week with spot demand light and price changes neither large nor frequent. Interest centered mostly on the outlook for November and opinions differed widely as to probable prices U. S. Motor would bring.

Some of the trade said prices were due for a decided drop while others were of the opinion that they would change very little. That the high range would drop fractionally but the bottom would remain close to 9.25 cents as at present, was the opinion of many.

Speculation as to next month's market was largely conversational, as very few of the trade reported willingness to do much business on an "over November" basis. The policy of the jobbers in buying hand-to-mouth has likewise affected the marketers who, in the main, were unwilling to "go long" or "sell short" any considerable quantity of gasoline.

While few of the trade were looking for higher prices, nevertheless they are of the opinion that refiners have the situation too well in hand to let the market take much of a slump.

Gasoline consumption held up well throughout the middle west and jobbers, who were buying on contract, were still taking out practically their entire commitments. Spot gasoline demand was lighter this week than the previous week, most of the trade reported.

Gasoline prices were generally unchanged. The majority of sales of 58-60 U. S. Motor were at 9.375 to 9.75 cents Oct. 22 and 23 and from 9.25 to 9.75 cents thereafter. As has been the case for the past few weeks, the lowest prices were being quoted by marketers and small refiners while the larger refiners were holding strictly to the 9.75 cent price.

The high test gasoline situation was on a little better basis as the week closed. Although domestic buying has been rather dull for the past few weeks, the recent export movement in Oklahoma and Texas and the fact that exporters are still inquiring for gasolines has put a firmer tone to these products. One refiner reported a good demand for 68-70, 350-360 e. p. gasoline from the northern portions of this marketing territory.

The higher gravity gasolines were generally unchanged in price over the week. The 60-62, 437 e. p. grade moved mostly at 9.625 to 9.875 cents, while 60-62, 400 e. p. moved at 9.875 to 10.125 cents. Gasoline of 64-66, 375 e. p. moved at 10.50 to 11 cents but the majority of sales were at 10.625 to 10.875 cents.

Kerosene buying by exporters the past week together with reports that some of the large companies in the southwest were also in the market for this product, brought a halt to the downward trend in kerosene prices. The market for 41-43 w. w. kerosene was 5.875 to 6 cents as the week opened and dropped to 5.75 to 6 cents on Oct. 23. Some sales were also reported at 5.625 cents. On Oct. 24 the market was considerably firmer and no sales were reported at 5.625 cents. Some sellers advanced their prices to 5.875 and 6 cents but the majority of business was done at 5.75 to 6 cents throughout the week.

Continued open weather throughout this territory was credited by most sellers with the quietness in the zero grades of furnace oils. Demand was not very heavy in most quarters, although most sellers reported doing a fair business. Industrial concerns were inquiring for their November fuel requirements with indications that prices they would have to pay would be approximately the same as are being quoted for prompt shipment.

Inquiries by jobbers for November fuels were not coming in very fast, most of the trade reported. Prices on all grades of heavy oils were generally unchanged throughout the week, although a few sellers were asking fractionally higher prices for 28-30 zero fuel oil.

Zero 28-30 fuel oil moved at $0.875 to $0.90 up to Oct. 24 and at $0.875 to $0.925 thereafter. Other grades of fuel oil as well as 38-40 straw distillate and the gas oils were unchanged over the prices shown in the Oct. 24 issue of NATIONAL PETROLEUM NEWS.

Mostly fair first of next week, followed by general precipitation period in Standard of Indiana territory. Temperatures will be near normal most of the week says the Chicago weather bureau.

Webb W. Wilson, general manager of the oil tool division of Byron Jackson Pump Co., accompanied by L. E. Vaughn of the same division, and G. A. Hagoes of the disc bit division, are making an extensive tour through the Mid-Continent oil fields. They will return to the factories in Los Angeles, around Nov. 1.

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Oct. 29	Prices Oct. 22	Prices Oct. 15
52-54 Naphtha	10.25 –10.50	10.50 –11.25	10.50 –11.25
54-56 Naphtha	10.25 –10.75	10.50 –11.25	10.75 –11.25
58-60 U.S. Motor 437 e.p.	11.00 –11.50	11.00 –11.50	11.00 –11.75
60-62 400-410 e.p. gasoline	11.50 –12.50	11.50 –12.50	12.00 –12.75
64-66 390 e.p. gasoline	12.00 –13.50	12.00 –13.50	12.50 –13.50
68-70 Str-run gas. 350-360 e.p.	13.25 –15.00	13.50 –13.75	13.50 –14.00
OHIO (Quotation of S. O. Ohio.)			
58-60 U.S.Motor, delivered in Ohio, tax to be added	12.50	12.50	12.50
OKLAHOMA			
48-50 450 e.p. naphtha	†8.75	†8.75 – 9.00	†8.75 – 9.00
50-52 450 e.p. naphtha	†8.75	†8.75 – 9.00	†8.75 – 9.00
56-58 450 e.p. gasoline	9.00 – 9.25	9.25 – 9.375	9.25 – 9.375
58-60 450 e.p. gasoline	9.25 – 9.50	9.375– 9.50	9.375– 9.50
64-66 390 e.p. gasoline	10.125–10.375	10.25 –10.375	10.25 –10.50
68-70 350-360 e.p. gasoline	10.75 –11.25	11.00 –11.25	11.25
OKLAHOMA (Weighted Average Prices)			
58-60 U.S. Motor, 437 e.p.	9.5772	9.7331	9.7446
60-62 437 e.p. gasoline	9.9000	9.8750	9.8472
60-62 400 e.p. gasoline	10.0625	10.1875	10.2083
64-66 375 e.p. gasoline	11.0000	10.8333	11.0000

In this issue, all above weighted average prices are effective on Monday on the dates shown at the top of the columns.

KANSAS (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	9.75 – 9.875	9.75 – 9.875	9.75
60-62 400 e.p. gasoline	10.25 –10.50	10.25 –10.50	10.25 –10.50
64-66 375 e.p. gasoline	11.00 –11.125	11.00 –11.125	11.00 –11.125
NORTH TEXAS			
48-52 450 e.p. naphtha	†8.75	†8.75	†8.75
56-58 450 e.p. gasoline	†8.75	†8.75	†8.75
58-60 450 e.p. gasoline	†8.75 – 9.00	†8.75 – 9.00	†8.75 – 9.00
58-60 U.S. Motor 437 e.p.	9.25	9.25	9.125– 9.25
60-62 400 e.p. gasoline	9.625	9.625	9.625
64-66 390 e.p. gasoline	9.75 – 9.875	9.75	9.75
64-66 375 e.p. gasoline	10.125–10.25	10.00 –10.125	10.00
68-70 350-360 e.p. gasoline	10.75 –11.00	10.75	10.75
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	9.50	9.50	9.50
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	9.00	9.00	9.00
58-60 450 e.p. gasoline	9.25	9.25	9.25
58-60 U.S. Motor 437 e.p.	9.50	9.50	9.50
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p.	9.00 –12.50	9.00 –12.50	9.00 –12.50
58-61 U.S. Motor 437 e.p.	10.00 –13.50	10.00 –13.50	10.00 –13.50
42-45 Eng. dis. 445-480 e.p.	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00

‡3c tax to be added to California gasoline prices if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	10.125–10.25	9.625	9.875
Grade A, 72-79.9, 90% Recovery	10.125–10.25	9.625	9.875
Grade BB, 84-92, 85% Recovery	10.00	9.625	9.50 – 9.625
Grade B, 76-83.9, 85% Recovery	10.00	9.625	9.50 – 9.625
Grade C, 80-92, 78% Recovery	10.00	9.625	9.375
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	10.25	9.625– 9.75	9.875–10.00
Grade A, 72-79.9, 90% Recovery	10.25	9.625– 9.75	9.875–10.00
Grade BB, 84-92, 85% Recovery	10.00 –10.125	9.625	9.50 – 9.625
Grade B, 76-83.9, 85% Recovery	10.00 –10.125	9.625	9.50 – 9.625
Grade C, 80-92, 78% Recovery	10.00 –10.125	9.625	9.375
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†10.50 –10.75	†10.25	†10.25
Grade BB	†10.50	†10.00 –10.25	†10.00
Grade C	†10.50	†9.75	†9.75
CALIFORNIA			
75-85, 375-390 e.p. blend	5.50 – 7.00	7.00 – 7.50	7.00 – 7.50

MOTOR FUEL BLENDS

OKLAHOMA			
64-66 Blend 437 e.p.	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	7.25 – 8.00	7.375– 8.00	7.50 – 8.00
46 w.w. kerosene	7.75 – 8.50	7.75 – 8.50	7.875– 8.50
47 w.w. kerosene	8.125– 8.50	8.125– 8.875	8.125– 8.875
300 mineral seal	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75

OKLAHOMA	Prices Oct. 29	Prices Oct. 22	Prices Oct. 15
41-43 w.w. kerosene	6.00	6.00 – 6.125	6.00 – 6.25
42-44 w.w. kerosene	6.50	6.50 – 6.625	6.75
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	6.50 – 6.75	6.50 – 6.75	6.75
42-44 w.w. kerosene	6.75 – 7.00	6.75 – 7.00	7.00
NORTH TEXAS			
40-42 w.w. kerosene	5.625– 5.75	5.625– 5.75	5.625– 5.75
41-43 w.w. kerosene	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
41-43 w.w. kerosene	6.75	6.75	7.00
ARKANSAS (Arkansas destination only)			
42-44 kerosene	7.00	7.00	7.00 – 7.25
CALIFORNIA			
38-40 w.w. kerosene	6.25 – 7.00	6.25 – 7.00	6.25 – 7.00

NEUTRAL OIL

Vis.				
PENNSYLVANIA		(Viscosity at 70°F.)		
200 No. 3 Assoc. Filt.		28.00 –30.00	28.50 –31.00	28.50 –31.00
180 No. 3 Assoc. Filt.		25.50 –27.00	25.50 –28.00	26.00 –29.00
150 No. 3 Assoc. Filt.		22.00 –23.00	22.00 –24.50	22.00 –25.00
		(Non Viscous)		
34 Grav. 330-340 Flash		7.50 – 9.00	7.50 – 9.00	7.50 – 8.00
36 Min. Neut., 300-305 Flash		6.75 – 7.75	6.75 – 7.75	6.75 – 7.75
****OKLAHOMA**				
Vis.	Color	(Viscosity at 100°F.)		
100	No. 2	5.50 – 6.50	6.00 – 6.50	6.00 – 6.50
150	No. 3	7.50 – 8.50	8.00 – 8.50	8.00 – 8.50
150	No. 4	6.50 – 7.50	8.00 – 8.50	8.00 – 8.50
180	No. 3	8.50 – 9.50	9.00 –10.00	9.00 –10.00
180	No. 4	8.75 – 9.75	9.50 – 9.75	9.50 – 9.75
180	No. 5	8.50 – 9.50	9.25 – 9.75	9.25 – 9.75
200	No. 3	9.50 –10.25	9.50 –11.00	9.50 –11.00
200	No. 4	9.25 –10.00	9.50 –10.75	9.50 –10.75
200	No. 5	8.50 – 9.50	8.50 –10.00	8.50 –10.00
220	No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220	No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220	No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240	No. 3	13.00 –13.50	13.50 –14.00	13.50 –14.00
240	No. 4	12.00 –13.00	13.25 –13.50	13.25 –13.50
240	No. 5	11.00 –13.00	12.00 –13.00	12.00 –13.00
280	No. 3	14.00 –15.50	15.50 –16.50	15.50 –16.50
280	No. 4	13.00 –14.50	15.25	15.25
280	No. 5	12.00 –14.00	14.00 –15.00	14.00 –15.00
300	No. 5-6	15.00 –17.00	17.00	17.00
GULF COASTAL				
Vis.	Color	(Viscosity at 100°F., pour test 0)		
100	No. 2 Unfilt. Pale	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
200	No. 3 Unfilt. Pale	10.00 –10.75	10.00 –10.75	10.00 –10.75
300	No. 3 Unfilt. Pale	11.00 –11.75	11.00 –11.75	11.00 –11.75
500	No. 3½ Unfilt. Pale	12.50 –13.50	12.50 –13.50	12.50 –13.50
750	No. 4 Unfilt. Pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200	No. 5½ Red Oil	8.25 – 8.75	8.25 – 8.75	8.25 – 8.75
300	No. 5½ Red Oil	9.00 – 9.75	9.00 – 9.75	9.00 – 9.75
500	No. 6 Red Oil	10.50 –11.25	10.50 –11.25	10.50 –11.25
750	No. 6 Red Oil	13.50 –14.00	13.50 –14.00	13.50 –14.00
CALIFORNIA				
Vis.	Color	(Viscosity at 100°F.)		
100	No. 3	9.75 –10.00	9.75 –10.00	9.75 –10.00
200	No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300	No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450	No. 3	15.50 –16.00	15.50 –16.00	15.50 –16.00
550	No. 3	16.50 –17.00	16.50 –17.00	16.50 –17.00
600	No. 3	17.00 –17.50	17.00 –17.50	17.00 –17.50
200	No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300	No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400	No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500	No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600	No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700	No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

****OKLAHOMA**			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	27.00	26.00	26.00
600 E. St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	7.50 –10.00	8.00 –10.00	8.00 –10.00
600 St. Ref. Dark Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	13.50 –15.00	14.00 –14.75	13.50 –14.50
650 Steam Refined	15.00 –18.00	15.50 –17.00	15.00 –16.50
600 Flash	19.00 –21.00	19.00 –20.00	18.50 –19.00
625 Flash	29.00	27.50 –29.00	26.50 –29.00
600 Warren E	19.00 –19.50	17.50 –19.00	18.50 –19.50
600 Oil City E	17.00 –19.00	17.00 –18.875	17.00 –18.50
600 D Filtered	24.00	24.00	24.00 –24.50
Cold Test Stock, 40-50p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	‡33.50 –35.00	34.50 –36.00	35.50 –36.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	‡‡32.00–33.00	32.50 –34.00	33.50 –34.00

‡Three refiners quoting. ‡‡Two refiners quoting.

†Prices nominal ††Only one refiner quoting *Quotations only

****Represents both sales and quotations**

New Equipment

Merger is announced of the Bennett Pumps Corp. of Muskegon, Mich., and the Service Station Equipment Co., Ltd., of Toronto, Ont.

Both companies manufacture oil marketing equipment. The Service Station Equipment Co., which is associated with the company of the same name at Bryan, O., makes Eco air towers and air compressors, as well as visible gasoline pumps. Another of its associates, the Canadian John Woods Co., Toronto, manufactures underground storage tanks, range boilers and other sheet metal products.

About every kind of equipment required by the oil marketer will be made by the newly consolidated company.

The Service Station Equipment Co. and the Canadian John Woods Co. will make and distribute for Canadian use all products of the combined factories of these companies and the Bennett company will in turn manufacture and sell the products in the United States.

Each of the combined companies will be held intact and operate separately as heretofore, with its present officers and directors. Directors of the holding company will be: T. B. Bennett, S. H. Frensdorf, H. W. Knight, A. L. Ellsworth, R. H. Tudhope, Mr. Sutcliffe, and Mr. Markey.

* * *

Hills-McCanna Co., 2349 Nelson St., Chicago, has placed on the market the Young tank car bottom outlet valve which can be installed in any tank car equipped with an outlet leg. A tool has been devised to make the installation of this valve a simple process. The tool is placed inside the tank car and over the outlet, two of the tool's three legs are placed parallel to one side of the tank and the third leg, which is adjustable, is placed on a line with the other side.

This permits the tool to be leveled to the curve of the tank and allows the working side to face the tank end, giving room to operate air motor and adjust chuck.

* * *

A. Y. McDonald Mfg. Co., Dubuque, Ia., has off the press a 4-page bulletin devoted to its tank car unloading equipment. Double swing joints on suction line on each rack are claimed to give easy access to dome of car and a union wrench coupling furnished with each outfit makes the connection for overhead unloading.

The unloading equipment is made in two types, one for overhead unloading only, and the other for either overhead or bottom unloading.

Other equipment for use in various branches of the oil industry are described and illustrated.

Considering Selling Out or a Merger?

The method of either selling or buying oil jobbing properties is of vital and important consideration.

Confidential, dignified, and intelligent negotiations are an essential necessity. No business should be sold while the owner is "scared" if it can possibly be avoided.

A VALUABLE going business should not be *thrown* on the market.

The growth of major company competition and the apparent leaning of the buying public toward nationally advertised and nationally operated chains is not necessarily either a menace or a catastrophe.

Fundamental changes however are taking place in the Industry that justify the owners of many successful jobbing businesses in carefully considering the advisability of selling out.

In many cases, the first consideration may be a desire to travel or make adequate provision for children to enter other lines; or it may be the lure of California or Florida and to let someone else wrestle with the complexities of the ever changing competitive battle-front.

I am analyzing and appraising property valuations, developing economic reports, reconstructing earnings statements and establishing financial set-ups that give proper and adequate reflection to true values and justify a fair and commensurate asking price.

I am also investigating jobbing properties for major companies who desire to expand their ownership and operation of bulk and service stations.

There is a market for well balanced, properly managed oil jobbing companies and certain major companies are prepared to pay a fair and adequate price for them.

Cheap properties do not interest me. Good properties large or small do interest me.

Where investigation indicates purchase or sale is not desirable, I frankly so advise and assist in whatever reorganization and refinancing may be deemed expedient and advisable.

Booklet "Financing and Liquidating" mailed on request.

L. V. NICHOLAS

Oil Finance — Organization — Investment

624 South Michigan Ave., Chicago

All inquiries and correspondence strictly confidential and personal

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices Oct. 29	Prices Oct. 22	Prices Oct. 15
Per pound, New York			
122-124 white crude scale	5.00 – 5.50	5.25 – 5.50	5.25 – 5.50
124-126 white crude scale	5.25 – 5.50	5.50	5.50
OKLAHOMA			
**124-126 White Crude Scale	5.00 – 5.125	5.125	5.125– 5.25
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
30-34 fuel oil	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375
28-32 fuel oil	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375
OKLAHOMA			
38-40 straw distillate	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
36-38 straw distillate	3.125– 3.25	3.125– 3.25	3.125– 3.25
32-36 gas oil, straw	†2.625– 2.875	†2.625– 2.875	†2.625– 2.875
32-36 dark gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
28-30 fuel oil (in bbls.)	$0 85 – 0.90	$0.85 – 0.90	$0.85 – 0.90
26-28 fuel oil (in bbls.)	$0.675– 0.725	$0.675– 0.725	$0.675– 0.725
24-26 fuel oil (in bbls.)	$0.65 – 0.675	$0.65 – 0.675	$0.65 – 0.675
22-26 fuel oil (in bbls.)	$0.575– 0.625	$0.575– 0.625	$0.575– 0.625
18-22 fuel oil (in bbls.)	$0.575– 0.60	$0.575– 0.60	$0.575– 0.60
16-18 fuel oil (in bbls.)	$0.55	$0.55	$0.55
14-16 fuel oil (in bbls.)	$0.55	$0.55	$0.55
KANSAS (F. O. B. refinery Kansas destination)			
38-40 straw distillate	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625
36-38 straw distillate	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375
32-36 gas oil	2.75 – 2.875	2.75 – 2.875	2.75 – 2.875
24-26 fuel oil	*$0.75 – 0.80	*$0.75 – 0.80	*$0.75 – 0.80
18-22 fuel oil	*$0.70	*$0.70	*$0.70
NORTH TEXAS			
38-40 straw distillate	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375
32-36 gas oil, cracked	2.375– 2.50	2.375– 2.50	2.375– 2.50
32-36 St. reduced gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
24-26 fuel oil (in bbls.)	$0.55	$0.55	$0.55 – 0.575

GULF COASTAL	Prices Oct. 29	Prices Oct. 22	Prices Oct. 15
Fuel (in bbls.)	$1.20 –$1.25	$1.20 –$1.25	$1.20 –$1.25
Gas oil	4.375– 4.50	4.375– 4.50	4.375– 4.50
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	3.00	3.00	3.00
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
16-20 fuel oil (in bbls.)	$0.70	$0.70	$0.70
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 gas oil	3.00	3.00	3.00
28-32 gas oil	2.75	2.75	2.75
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (per bbl.)	$0.65 –$0.70	$0.65 –$0.70	$0.65 –$0.70
14-18 Bunker oil (per bbl.)	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00
30-34 gas oil (per bbl.)	$1.00 –$1.20	$1.00 –$1.20	$1.00 –$1.20
27 Plus Diesel oil (per bbl.)	$0.90 –$1.00	$0.90 –$1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars 5/8c to 3/4c per pound less.) Quotations of only one refiner on all grades except red petrolatum which is quoted by two refiners.

Snow White	8.25 – 8.625	8.625	8.625
Lily White	7.25 – 7.625	7.625	7.625
Cream White	6.50 – 6.625	6.625	6.625
Light Amber	3.625– 3.75	3.625	3.625
Amber	3.25 – 3.375	3.375	3.375
Red	3.00 – 3.125	2.375– 3.125	2.375– 3.125

PETROLEUM COKE

****OKLAHOMA**

(Per ton in car lots)

Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 –$5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

†Prices Nominal ††Only One Refiner Quoting *Quotations only **Represents Both Sales and Quotations

California Refinery Market

9 Cents Prevailing U. S. Motor Price

Staff Special

LOS ANGELES, Oct. 27

ALTHOUGH most California refiners are quoting U. S. Motor at 9 cents, this product is still available from one or two sources at 8.50 to 8.75 cents for export movement. Most of the major refiners are not seeking this business, as their gasoline runs consist largely of 375 and 400 end point grades.

Tank car gasoline is holding at 9 to 10 cents for out of state movement while quotations are fairly firm within state at 10.50 to 12.50 cents without tax. Rumors were current that a little gasoline was moving out of state at less than 9 cents, but these rumors could not be verified.

California Independent refiners are still worried over the report that a new freight rate will soon be placed in effect out of El Paso to Arizona points, giving the El Paso shipper a real advantage over the Los Angeles refiner.

The appearance of a number of new "six for a dollar" retail gasoline signs is causing some worry as it is feared that the cut price movement may grow. The important Independents as well as majors are holding firmly to the posted service station price. Some of the low price signs are within city limits, while others are without city limits where almost any grade of gasoline can be sold. Some of the resellers are putting out their cut price signs during the day and at night low price signs are hidden when a tank truck comes to dump a new supply.

Fuel oil is now showing new strength, although movement is increasing. Tank car fuel for spot sales is moving at 65 to 70 cents, while export price holds at 70 cents and up.

Some kerosene is being offered in tank cars at 5.50 cents. Gas oil in tank cars can be bought at around $1.

Natural gasoline was slightly quieter this week with a few spot sales at 6.50 cents. Other sales were around 7 cents.

Plans Made by A.N.G.M. For More Research

TULSA, Oct. 29.—The Natural Gasoline Association will ask the gasoline industry to contribute $10,000 to the 1928-1929 research program being conducted under the direction of Dr. George G. Brown at the University of Michigan. Decision to call for this sum was reached at a meeting of the board of directors of the association Oct. 23.

In order to raise this sum the board suggested that manufacturers contribute on the basis of 3/4 of a cent for each average gallon of net daily gasoline production. A minimum sum for plants making less than 5,000 gallons net per day will be asked.

The board determined to hold a meeting for plant operators in the Ranger district of Texas next January. The meeting will be arranged under the direction of Dr. E. R. Lederer, chairman of the plant operators' meeting committee.

A. V. Bourque, secretary of the association, was directed to attend the annual meeting of the California Natural Gasoline Association and representatives from Mid-Continent companies were urged to attend.

Pennsylvania Market

Bright Stocks Scarce

CLEVELAND, Oct. 29.—Export purchases of bright stock have taken most of this goods off the western Pennsylvania market until the middle of November. Approximately 4000 barrels of light and dark filtered stocks were bought late last week.

Bright stocks now are more difficult to obtain, for this season than for several years back, reported one Pennsylvania refiner today. A check of the market today revealed three refiners quoting light bright stock for prompt shipment at 33.50 to 35 cents, and two quoting dark bright at 32 to 33 cents for prompt.

Refiners with larger bright stock capacities are out of the market until the middle or the end of November. Quotations for delivery after the middle of next month are 33 to 35 cents for light bright and 31 to 33 cents for dark bright.

U. S. Motor gasoline over last week was unchanged at 11 to 11.50 cents. Some refiners are quoting 11 cents, today's price, for over November.

Inquiries for November gasoline have not been numerous, several refiners reported. Current buying last week was spotty, some refiners reporting they had sufficient orders on hand for current production and others reported demand was not brisk.

Cylinder stocks continued in active demand. Fuel oil demand continued to perk up with some refiners. Wax stocks were low. Viscous neutrals were not in great demand.

Quotations on most commodities were unchanged over the week. The 45 w.w. kerosene was quoted down to 7.25 cents today, with some refiners continuing to ask 7.75 and 8 cents for their goods. Fuel oil quotations were unchanged. The 122-124 wax was quoted at 5 to 5.50 cents and the 124-126 wax at 5.25 to 5.50 cents. Viscous neutral quotation ranges were narrowed with bottom of the market unchanged.

Eastern Kentucky Refinery Marketed

ASHLAND, Oct. 29.—Fuel oil in eastern Kentucky refinery market has shown great improvement over past week, and gasoline and kerosene demand is good. Kerosene output is committed. Prices are unchanged over Oct. 22. Oct. 29 prices, f.o.b. eastern Kentucky refining district, are:

58-60 gasoline	12.00
60-62 gasoline	12.50
64-66 gasoline	13.00
68-70 gasoline	13.25
41-43 kerosene	Output committed
34-36 gas oil	4.75
24-26 fuel oil	3.00

Wax Market

Prices Slightly Lower

NEW YORK, Oct. 27.—Wax prices eased off a shade further in the New York market during the week ended Oct. 27. Foreign demand picked up a bit but not sufficient to lift the market and prices from the unsettled position they have held for the past two or three weeks.

The call for fully refined waxes was larger than that for scale. In fact two sizable inquiries for 125-127 A. m. p. fully refined were circulated through the trade early in the week—one was for 200 to 300 tons from Spanish buyer. Resale agents were quoting about 0.125-cent lower for this grade than refiners were, but it was doubtful if any of them were in a position to offer on an order of this size. A range of 5.625 to 5.875 cents covered quotations for 125-127 A. m. p. The higher melting points also were quoted slightly lower than a week ago.

White crude scale, according to the reports of several dealers, was bid for freely at 4.75 cents but few were willing to sell any volume of stuff at this price. Small lots changed hands at this figure, however. One large refiner asserted he had turned down a firm offer of 4.80 cents a pound for a large quantity. Several companies were quoting as high as 5.25 cents for scale, but most of them were offering at 5 cents.

The New Orleans market was quiet with prices generally unchanged.

Kanotex Buys Lesh Refinery

TULSA, Oct. 27.—The Kanotex Refining Co., Arkansas City, Kan. has purchased the Lesh Refining Co. properties which adjoin the Kanotex refinery. The Lesh plant has not been operated for a number of years. The Kanotex company will utilize the storage tanks and grounds and will salvage what equipment can be used around the present plant. No effort will be made to put the Lesh plant into operation.

LOS ANGELES, Oct. 27.—Distillation apparatus, developed by Dr. Walter J. Podbielniak, is being installed by the inventor in the research laboratory of J. A. Campbell, at Long Beach, Calif., to be used for the fractionating of gasoline, gas and vapor samples. With this apparatus, the Campbell organization will be in better position than ever to check up on existing apparatus, thereby being guided in designing more perfect equipment for use in gasoline plant construction. The Podbielniak apparatus will be operated by W. R. Davis, Jr., under the direct supervision of H. N. Wade, research engineer for J. A. Campbell.

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Bonham, Texas

Gulf Export Market

Sales Brisk at Higher Prices

Staff Special
NEW YORK, Oct. 27

GULF export markets took on new life this week with a continuance of the active buying which got under way late last week. Deals involving approximately 220,000 barrels of gasoline and kerosene were closed and inquiries covering a similar volume of material were outstanding Oct. 27. From recent chartering reports for tank steamers, indications were the inquiry for deferred shipment would continue active next week.

Each successive sale this week brought slightly higher prices than governed in the previous transaction with the result that suppliers at the end of the week were quoting from 0.25 to 0.5-cent higher than on Monday. Several withdrew from the market completely since, they asserted, they have nothing to offer for shipment further ahead than the latter part of December.

It was generally conceded among suppliers that there is very little if any unsold gasoline at the seaboard, either the Gulf or east coast, that is, goods which could be loaded within the next 60 days. And unless California should again enter the picture, there seemed to be little doubt that still higher prices would obtain in the immediate future. With stocks at the Gulf in the position they are now, Independent suppliers asserted they could not afford to sell at less than replacement costs in the field.

There seemed to be little fear this week that California would be much of a disturbing factor in the export market, at least for the time being. One large refiner on the west coast, it was said, has in the last 10 days turned down offers on 15 cargoes of gasoline, largely because of the low price ideas of buyers—prices which figured considerably under the Gulf. In view of this it was generally thought that were California refiners to compete for export, their prices would be about on a par with the Gulf.

The activities of buyers this week confirmed to a considerable degree the reports from suppliers of relatively low stocks of gasoline at the Gulf. The French subsidiary of a leading refiner which almost invariably buys from the parent company was forced to secure its requirements elsewhere. Its inquiry for a large cargo of gasoline and kerosene was closed by a foreign supplier for shipment out of the West Indies. According to reports from the New York trade, the buyer was successful in securing only gasoline. Prices were reported as close to those paid last week at the Gulf. A broker working on the inquiry said the best prices he could get from U. S. suppliers were 9.25 cents for U. S. Motor, 11.375 cents for 64-66, 375 e.p. gasoline, 6.75 cents for prime white and 8 cents for water white kerosene.

A large French buyer early in the week succeeded in getting approximately 60,000 barrels of 64-66, 375 end point gasoline and prime white kerosene from a small Independent refiner at what were considered rather attractive prices. A price of 10.875 cents, paid in several instances last week, was obtained for the 64-66 which comprised the biggest part of the cargo. The prime white, however, sold at 6.875 cents against a general market of 6.75 cents and this, in a measure, made up for the low price for gasoline.

On Tuesday the same buyer paid another Independent refiner 11 cents and 7.625 cents, respectively, for approximately 60,000 barrels of 64-66, 375 end point gasoline and water white kerosene. Second half of December loading was designated for the first cargo, whereas loading of the latter is to be completed by Dec. 15.

A smaller lot, approximately 40,000 barrels, of 64-66, 375 end point gasoline only was sold by the same refiner at 11.125 cents on the same date, Oct. 23, and a full cargo of U. S. Motor and 64-66, 375 end point gasoline was sold for December loading at 9.25 cents and 11.25 cents, respectively. A part cargo, approximately 11,000 barrels, of the higher gravity gasoline sold Oct. 25 at 11.375 cents—a new high for the present movement.

Definite inquiries circulated among the trade late in the week, covering approximately 200,000 barrels of gasoline and kerosene, all designated loading as late as January. Suppliers for the most part said they would be unwilling to consider business for January loading for at least two or three weeks.

The following were the most important of the inquiries pending Saturday:

French buyer: 25,000 barrels of 64-66; 25,000 barrels of prime white; 25,000 barrels of water white; December-January.

French buyer: 50,000 to 60,000 barrels of 61-63, 390 and 64-66, 375 end point gasoline; January.

Scandinavian buyer: 65,000 barrels of 61-63, 390 and 64-66, 375 end point gasoline; November-December-January.

The market for heavier oils at the Gulf was quiet most of the week and prices were slightly lower. Active sellers of Grade C bunker oil in cargoes were quoting a maximum of $0.65 a barrel. Bunker prices were about the same as a week ago.

New York Domestic Market

Cool Weather Stiffens Kerosene

Staff Special
NEW YORK, Oct. 27

GASOLINE demand slowed up considerably in eastern tank car markets the past week. Brisk temperatures spread over the northern Atlantic seaboard states which discouraged to a large degree anything but routine motoring. The cooler weather, however, brought with it increased demand for kerosene and heavier burning oils. Prices of all commodities in virtually all districts were the same as a week ago.

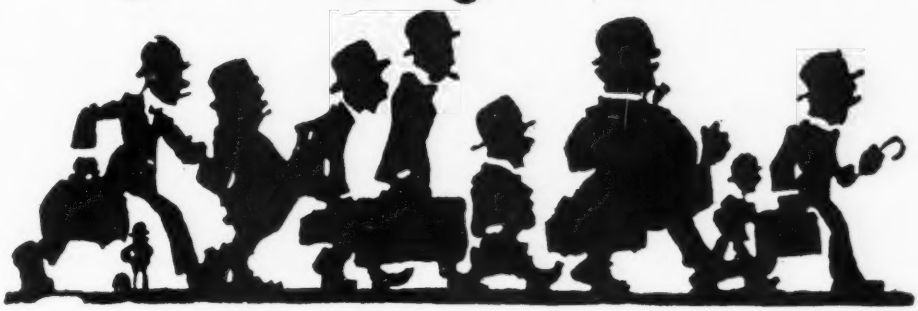
Lower gasoline prices, looked for in a good many quarters, failed to materialize. Buyers on the one hand were looking for a seasonal decline in prices, whereas some sellers during the early days of the week were figuring they might have to reduce prices slightly to stimulate activity. Jobbers, according to many reports, were eager to know what their November requirements were going to cost them.

Outside influences probably had more to do with sellers holding their firm position than the action of tank car markets themselves. The sharp comeback the Gulf market staged this week together with a tightening in the California gasoline market looked most encouraging to the eastern trade. Few sellers were willing to commit themselves over November; those that were asking the same prices quoted for spot shipment.

The majority of sellers in New York

(*Continued on Page* 108)

Leave your pajamas at home



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Whoopee.

November 20

More prizes.

Style show for ladies. (Ladies only)

Big eats.

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Promotion
Profit for you.

Prizes again.

Lots of serious business.

Monkey business.

Card party for ladies.

Theatre party for ladies.

Banquet, music, dancing.

November 21

Still more prizes.

The relation of petroleum to aviation.

A little more business.

Windjamming contest.

Announcement of winners:

1. Attendance contest
2. Membership contest
3. Speech contest
4. Advertising contest
5. 100% attendance contest

* * * *

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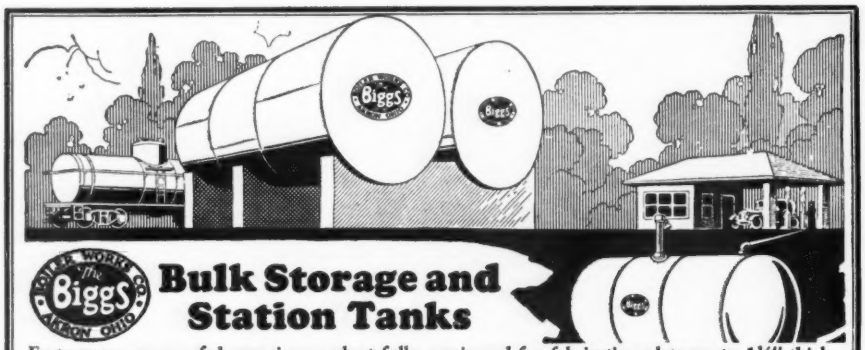

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Leetonia, O.—Vernon Walters, filling station.
Liberal, Kans.—K-T Oil Corp., filling station.
Paris, Tex.—Bob Milam, filling station.
Edmond, Okla.—B. H. Mears and M. J. Connor, filling station.
Haverhill, Mass.—Standard Oil Co. of New York, filling station.
Perry, Fla.—H. T. Wilkes, filling station.
Athens, O.—Biedel-Mead Oil Co., filling station.
Houston, Tex.—L. R. Kier, super service station.
Tuscaloosa, Ala.—Pan-Am Oil Co., filling station.
Brooklyn, N. Y.—Joseph Gellman, 1116 72nd St., filling station.
Montgomery, Ala.—James Gallagher, filling station.
Gloucester, Mass.—Gulf Refining Co., filling station.
Turlock, Cal.—Union Oil of Calif., 3 filling stations.
Redwood Falls, Minn.—Scenic City Co-operative oil, filling station.
Little Rock, Ark.—The Texas Co., filling station.
Punxsutawney, Pa.—Sterling Oil Co., filling station.
Rome, N. Y.—Ideal Gas & Oil Co., filling station.
Hastings, Neb.—Continental Oil Co., filling station.

New Patents

October 23, 1928

REFINING

Art of Cracking Hydrocarbons—John E. Bell, deceased, Brooklyn, N. Y., by Lola R. Bell executrix, Brooklyn, N. Y., assignor to Sinclair Refining Company, New York, N. Y. Filed Jan. 22, 1925. No. 1,688,325.

Process of Cracking Oil—Robert T. Pollock, Boston, Mass., assignor to Universal Oil Products Company, Chicago, Ill. Filed Dec. 6, 1920. No. 1,688,830.

Oil Apparatus—Claude F. Tears, Chicago, Ill. assignor to Universal Oil Products Company, Chicago, Ill. Filed June 18, 1923, No. 1,688,839.

Process for Converting Petroleum Oils—Aubrey D. David, Chicago, Ill., assignor to The Universal Oil Products Company, Chicago, Ill. Filed Feb. 14, 1923. No. 1,688,855.

Process of Cracking Hydrocarbons—Gustav Egloff and Harry P. Benner, Chicago, Ill., assignors to Universal Oil Products Company, Chicago, Ill. Filed Dec. 20, 1920. No. 1,688,859.

Process for Cracking Oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill. Filed Oct. 31, 1921. No. 1,688,860.

Process of Cracking Petroleum Oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill. Filed Oct. 17, 1923. No. 1,688,861.

Flotation Oil—Royer Luckenbach, Brooklyn, N. Y. Filed March 23, 1925. No. 1,688,975.

Cutting Oil and Process of Producing Same—Myron Park Davis, Yonkers, N. Y., assignor to Otis Elevator Company, Jersey City, N. J. Filed Feb. 3, 1926. No. 1,689,011.

PRODUCTION

Well Mechanism—Grover C. Bushong, Whittier, Calif. Filed Feb. 15, 1926. No. 1,688,483.

Pumping Apparatus—Samuel Clark Carter, Los Angeles, Calif., assignor to Anson Robinson and J. H. Carson, Los Angeles, Calif. Filed April 27, 1926. No. 1,688,484.

Apparatus for Supplying Artificial Pressure to Oil Sand—James O. Lewis and Homer R. Pierce, Tulsa, Okla. Filed Dec. 29, 1927. No. 1,688,586.

Sand-Reel-Operating Mechanism — Richard Ward Sage and Harry Raymond Boughner, Augusta, Kans. Filed July 17, 1922. No. 1,688,599.

Method of Heat-Treating Sucker Rods—Jesse L. Gray, Los Angeles, Calif., assignor to L. P. Burgess, D. Daniels, and J. O. Clutter, trustees. Filed Jan. 8, 1927. No. 1,688,705.

MISCELLANEOUS

Apparatus for the Distillation of Coal and Similar Carbonaceous Substances—Charles Henry Parker, Codsall, England. Filed Jan. 27, 1928. No. 1,689,152.

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

	Oct. 29	Oct. 22	Oct. 15
U. S. MOTOR GASOLINE			
New York harbor	11.25	11.25	11.00 –11.25
Portland district	*13.50	*13.50	†12.25 –12.75
Boston district	*13.00	*13.00	**12.25
Providence district	*13.00	*13.00	**11.75–12.25
Philadelphia district	11.00 –11.25	11.25	11.25
Baltimore district	11.25	11.25	11.25
Norfolk district	11.25	11.25	11.25
Charleston district	11.25	11.25	11.25
Savannah district	11.00	11.00	11.00
Jacksonville district	11.00	11.00	11.00
CALIFORNIA U. S. MOTOR GASOLINE			
New York harbor	11.25	11.25	11.25
Philadelphia district	11.00	11.00	11.25
Baltimore district	11.25	11.25	11.25
WATER WHITE KEROSENE			
New York harbor	9.00	9.00	9.00
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00	9.00	9.00
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
Boston district	4.75 – 5.00	4.75 – 5.00	4.75
FURNACE OIL: 36-40 Gravity			
New York harbor	6.50	6.50	6.50
Boston district	6.50	6.50	6.25 – 6.50
GRADE C BUNKER OIL			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00	$2.00	$2.00
MEDICINAL OILS, RUSSIAN			
885-890 s.g., 325-330 vis.	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
870-875 s.g., 150-155 vis.	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
860-865 s.g., 80-85 vis.	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

Note: Above prices do not include inspection tax levied in some states.
*Minimum delivered. †13.50 to 14c delivered. **13 to 13.50c delivered.

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products)

	Oct. 29	Oct. 22	Oct. 15
U. S. Motor gasoline	26.40	26.40	26.90
43-45 150 w.w. kerosene	18.90	18.90	18.90
42-44 110 s.w. kerosene	17.65	17.65	17.65
CYLINDER OILS			
Bright stock, dark	39.00 –41.00	41.00 –42.00	44.00
600 D filtered	31.00 –32.00	31.00 –32.00	31.00 –32.00
600 Warren E filtered	25.00 –26.00	26.00 –27.00	26.00 –27.00
600 s.r. unfiltered	20.50 –22.00	21.00 –22.00	21.00 –22.00
650 s.r. unfiltered	23.00 –24.00	22.50 –24.00	22.50 –24.00
600 flash, s.r.	26.50 –27.00	26.00 –26.50	26.00 –26.50
630 flash, s.r.	35.00 –36.00	35.00 –36.00	36.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.50	19.50	19.50
250 vis. No. 6 color	18.50	18.50	18.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3¼ color	19.50	19.50	19.50
100 vis. No. 2¼ color	15.50	15.50	15.50
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	34.50	34.50	34.50
500 vis. No. 6¼ color	32.50	32.50	32.50
400 vis. No. 7¼ color	30.50	30.50	30.50
300 vis. No. 6 color	29.50	29 50	29.50
200 vis. No. 3¼ color	20.00	20.00	20.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g	$0.70	$0.70	$0.70
WAXES (In cents per pound, f.a.s. carload lots)			
WHITE CRUDE SCALE (In barrels)			
122-124 A.m.p.	4.75 – 5.00	4.875– 5.125	5.125– 5.25
124-126 A.m.p.	4.75 – 5.00	4.875– 5.125	5.125– 5.25
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila	5.625– 5.75	5.75	5.625– 5.75
125-127 A.m.p.	5.625– 5.875	5.75 – 5.875	5.75 – 5.87
128-130 A.m.p.	5.75 – 6.00	5.875– 6.00	5.875– 6.00
130-132 A.m.p.	6.375– 6.50	6.50	6.50
133-135 A.m.p.	7.00 – 7.25	7.25	7.25
135-137 A.m.p.	7.50 – 7.75	7.75	7.75
YELLOW CRUDE SCALE			
4-126 A.m.p.	4.875	4.875	5.00

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

	Oct. 29	Oct. 22	Oct. 15
GASOLINE			
U. S. Motor	9.25	9.25	9.125– 9.25
60-62 400 e.p.	10.25 –10.50	10.00 –10.25	10.00
61-63, 390 e.p.	10.875–11.00	10.625–10.75	10.50 –10.75
64-66, 375 e.p.	11.25 –11.50	11.00	10.875–11.00
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.00	$2.00	$2.00
KEROSENE			
44 water white	7.75	7.75 – 8.00	7.75 – 8.00
41-43 prime white	6.75	6.50 – 6.75	6.50 – 6.75
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875	3.875– 4.00	3.875– 4.00
*30-32 translucent gas oil	3.875– 4.00	4.00	4.00
Grade C bunker oil	$0.85 –$0.95	$0.85 –$0.95	$0.85 –$0.95
Grade C bunker oil, cargoes	$0.65	$0.65 –$0.70	$0.65 –$0.70

*Less than ½ of 1% sulfur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
Grade C bunker oil, for bunkering purposes, taxes paid	$1.05	$1.05	$1.05
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.: cold test 0) (Tanker, f.o.b. Houston)			
100 vis. No. 2 unfiltered pale	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
200 vis. No. 3 unfiltered pale	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
300 vis. No. 3 unfiltered pale	9.50 –10.00	9.50 –10.00	9.50 –10.00
500 vis. No. 3½ unfiltered pale	10.75 –11.50	10.75 –11.50	10.75 –11.50
750 vis. No. 4 unfiltered pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	15.50 –17.00	15.50 –17.00	15.50 –17.00
200 vis. No. 5-6 red oil	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
300 vis. No. 5-6 red oil	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
500 vis. No. 5-6 red oil	9.75 –10.50	9.75 –10.50	9.75 –10.50
750 vis. No. 5-6 red oil	11.25 –12.00	11.25 –12.00	11.25 –12.00
1200 vis. No. 5-6 red oil	14.50 –16.50	14.50 –16.50	14.50 –16.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Oct. 29	Oct. 22	Oct. 15
Gasoline, U. S. Motor, 53-55 Gravity	8.00 – 8.50	8.00 – 8.50	8.25 – 8.75
Gasoline, U. S. Motor, blends and special cuts	9.00 –10.75	9.00 –10.75	9.00 –10.75
Gas Oil, 30-34, per barrel	$1.10 –$1.20	$1.10 –$1.20	$1.10 –$1.20
Diesel Oil, 27 plus, per barrel	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
Bunker oil, 14-18, per barrel	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00
Fuel oil, 14-18 per barrel	$0.70 –$1.00	$0.70 –$1.00	$0.70 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.25 – 6.25	5.25 – 6.25	5.25 – 6.25
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125-150 flash	$1.50 –$1.60	$1.50 –$1.60	$1.50 –$1.60

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrels)

	Oct. 29	
	Crude &/or Fuel	Refined Oil
Calif. to U. K. or Continental ports*	25	22-23
Gulf to U. K. or Continental ports*	14	13
North Atlantic to U. K. or Continental ports*	12/3	11
Calif. to North Atlantic ports (not E. of N. Y.)	50-55c	64c
Gulf and North Atlantic ports (not E. of N. Y.)**	16-17c	20-25c

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**For Venezuela loading 1c per bbl. additional For Tampico loading 4c per bbl. additional.

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Tank Wagon Price Changes

Gasoline Changes

Standard of Indiana—S.s. price only of gasoline reduced 2 cents, Madison, to 17.3 cents, including 2 cent state tax, Oct. 21. T.w. is unchanged at 17.3 cents.

Eastern Domestic Market

(*Continued from Page* 104)

harbor continued to ask 11.25 cents a gallon for U. S. Motor gasoline. At least one resale agent reported he was taking on some business at 0.125 to 0.25-cent less but he himself did not consider his total sales as representative of the general market. The territory of New York harbor refiners has been narrowed considerably by the 11-cent competition from the Philadelphia district. Several asserted they were having no trouble in getting 11.25 cents from upstate buyers but they were shut out from eastern Pennsylvania, normally their territory, by 11-cent offers from Philadelphia.

One large seller in the Philadelphia district began offering regular U. S. Motor gasoline early this week at 11 cents, the same price he quoted for California grade. Aside from this, the market there was unchanged, with several of the larger companies still asking 11.25 cents.

The Baltimore market was generally unchanged with 11.25 cents quoted for both U. S. Motor and California gasoline.

Prices in New England and also in southern seaboard districts were unchanged. New England sellers admitted they were not getting much business at 13 cents delivered, but they were holding firm at this figure. Contract goods is now moving at the same price as spot stuff.

Lower temperatures stimulated the demand for domestic burning oils and although nothing new developed in the way of higher prices, sellers reported good movement against contracts and a steadily increasing call for furnace oil particularly, in the open market.

The supply of kerosene on the seaboard remained relatively low and sellers were firm in their quotations of 9 cents for water white on the routine one and two car orders which entered the market.

Grade C bunker oil was unchanged at $1.05 a barrel, f.o.b. terminals in New York harbor.

CHICAGO, Oct. 27.—American Petroleum Co., with offices in the Peoples Gas building, Chicago, for the past several years has arranged to move Oct. 29 to larger quarters. The new quarters will be in the Straus building, 310 South Michigan avenue, room 1949. The telephone number, Wabash-1830, remains unchanged.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for the whole year, arranged for quick reference)

These Prices in Effect Oct. 29, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	17	2	19	20	14
Newark, N. J.	17	2	19	20	14
Annapolis, Md.	17	4	21	23	14
Baltimore, Md.	17	4	21	23	11
Cumberland, Md.	17	4	21	23	14
Washington, D. C.	17	2	19	21	14
Danville, Va.	17	5	22	*	14
Norfolk, Va.	14	5	19	20	14
Richmond, Va.	17	5	22	24	14
Roanoke, Va.	17	5	22	24	14
Petersburg, Va.	17	5	22	24	14
Charleston, W. Va.	17	4	21	23	14
Keyser, W. Va.	17	4	21	23	14
Parkersburg, W. Va.	17	4	21	23	14
Wheeling, W. Va.	17	4	21	23	14
Charlotte, N. C.	17	4	21	23	14
Hickory, N. C.	17	4	21	23	14
Mt. Airy, N. C.	17	4	21	23	14
Salisbury, N. C.	17	4	21	23	14
Charleston, S. C.	17	5	22	24	14
Columbia S. C.	17	5	22	24	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	18	0	18	*20	15
Albany, N. Y.	18	0	18	21	15
Buffalo, N. Y.	18	0	18	20	15
Rochester, N. Y.	18	0	18	20	13
Syracuse, N. Y.	18	0	18	20	15
Boston, Mass.	18	0	18	20	15
Augusta, Me.	18	4	22	24	15
Manchester, N. H.	18	4	22	24	15
Burlington, Vt.	18	3	21	23	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York, selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	17	*	17	*22	15
Philadelphia, Pa.	17	*	17	*22	15
Allentown, Pa.	17	*	17	*22	15
Erie, Pa.	17	*	17	*22	15
Scranton, Pa.	17	*	17	*22	15
Altoona, Pa.	17	*	17	*22	15
Dover, Del.	17	3	20	22	15
Wilmington, Del.	17	3	20	22	15
Providence, R. I.	18	2	20	22	15
Boston, Mass.	18	0	18	20	15
Springfield, Mass.	18	0	18	20	15
Worcester, Mass.	18	0	18	20	15
Hartford, Conn.	18	2	20	22	14
New Haven, Conn.	18	2	20	22	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Ashland, Ky.	17	5	22	24	15.5
Catlettsburg, Ky.	17	5	22	24	15.5
Lexington, Ky.	16	5	21	23	15.5
Louisville, Ky.	16	5	21	23	15
Covington, Ky.	17	5	22	22	15.5
Clarksdale, Miss.	17	4	21	23	13
Gulfport, Miss.††	18.5	4	22.5	24.5	14
Jackson, Miss.	15	4	19	21	14.5
Natchez, Miss.	16.5	4	20.5	22.5	14
Vicksburg, Miss.	16.5	4	20.5	22.5	14
Birmingham, Ala.	14	4	18	20	14
Mobile, Ala‡	18	4	22	24	15
Montgomery, Ala.*	17	4	21	22	16.5
Atlanta, Ga.	18	4	22	24	†16.5
Augusta, Ga.	18	4	22	24	†15.5
Macon, Ga.	18	4	22	24	†16.5
Savannah, Ga.	17	4	21	21	†15.5
Jacksonville, Fla.	18	5	23	25	14.5
Miami, Fla.	19	5	24	26	15.5
Tampa, Fla.	18	5	23	25	14.5
Pensacola, Fla.**	19	5	24	24	14.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Chicago, Ill.	15	0	15	17	12
Decatur, Ill.	15.2	0	15.2	17.2	12.1
E. St. Louis, Ill.	14.4	0	14.4	16.4	11.2
Joliet, Ill.	15.4	0	15.4	17.4	12.3
Peoria, Ill.	15.2	0	15.2	17.2	12.1
Quincy, Ill.	15.2	0	15.2	17.2	11.9
Indianapolis, Ind.	15.2	3	18.2	20.2	13.2
Evansville, Ind.	15	3	18	20	13
South Bend, Ind.	15.4	3	18.4	20.4	13.4
Detroit, Mich.	15.8	3	18.8	20.8	13.7
Grand Rapids, Mich.	15.7	3	18.7	20.7	13.6
Saginaw, Mich.	15.9	3	18.9	20.9	13 8
Green Bay, Wis.	15.6	2	17.6	19.6	12.4
Madison, Wis.	15.3	2	17.3	17.3	12.1
Milwaukee, Wis.	15.1	2	17.1	19.1	11.9
La Cross, Wis.	16.2	2	18.2	20.2	13
Minneapolis, Minn.	16.2	2	18.2	20.2	12.9
Duluth, Minn.	16.5	2	18.5	20.5	12.9
Mankato, Minn.	16.1	2	18.1	20.1	12.7
Des Moines, Ia.	15.5	3	18.5	20.5	12.3
Davenport, Ia.	15.5	3	18.5	20.5	12.3
Sioux City, Ia.	15.1	3	18.1	20.1	11 9
Mason City, Ia.	15.5	3	18.5	20.5	12.3
St. Louis, Mo.	*14.9	2	16.9	18.9	11.3
Kansas City, Mo.	†15.9	2	17.9	19.9	10.6
St. Joseph, Mo.	†15.5	2	17.5	19.5	11.2
Fargo N. D.	17.9	2	19.9	21 9	14.9
Grand Forks, N. D.	18.2	2	20.2	22.2	15.2
Minot, N. D.	17.9	2	19.9	21.9	14.9
Pierre, S. D.	16	4	20	22	13.4
Huron, S. D.	16.3	4	20.3	22.3	13.7
Wichita, Kans.	13.8	2	15.8	17.8	10.8
Bartlesville, Okla.	13.5	3	16.5	18.5	10.5

S. O. Indiana's quantity contract price schedule on tank truck deliveries of gasoline, figured from the service station price, is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month; and 3c for 6000 gals. or more a month.

*Includes city tax of ½c.

†Includes city tax of 1c.

CONTINENTAL OIL

Denver, Colo.	16	3	19	22	14.5
Pueblo, Colo.	16	3	19	22	14.5
Grand Junc., Colo.	19.5	3	22.5	25.5	18
Casper, Wyo.	16	3	19	22	13
Cheyenne, Wyo.	17	3	20	23	14.5
Butte, Mont.	20.5	3	23.5	26.5	19
Helena, Mont.	20.5	3	23.5	26.5	19
Salt Lake City, Utah	18.5	3½	22	25	17
Boise, Ida.	20 5	4	24.5	27.5	19
Twin Falls, Ida.	20.5	4	24.5	27.5	19
Albuquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	16	5	21	23	14
Alexandria, La.	15	2	17	19	†16
Baton Rouge, La.	14	2	16	18	†14.5
Lake Charles, La.	15.5	2	17.5	19.5	†16
New Orleans, La.	*13.5	2	*15.5	*17.5	†16
Shreveport, La.	15.5	2	17.5	19.5	†15
Lafayette, La.	15	2	17	19	†15.5
Bristol, Tenn.	18	3	21	23	15
Chattanooga, Tenn.	17.5	3	20.5	22.5	16
Knoxville, Tenn.	18	3	21	21	16
Nashville, Tenn.	17	3	20	22	16
Memphis, Tenn.	16	3	19	21	15

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
All Ohio points	16	3	19	20	14

S. O. NEBRASKA

Omaha, Neb.	15.25	2	17.25	19.25	12.25
McCook	16.75	2	18.75	20.75	13 75
Norfolk	15.75	2	17.75	19 75	12 75
North Platte	16.75	2	18.75	20.50	13.50
Scottsbluff	16.75	2	18.75	20 75	13.25

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	20	12
Oklahoma City	15	3	18	20	12
Tulsa, Okla.	14	3	17	19	10
Fort Smith, Ark*	15	†3	18	20	14
Little Rock, Ark.	16	5	21	23	14
Texarkana, Ark.*	14.5	*2	16.5	20.5	13
Dallas Tex.	14	2	16	20	12
Fort Worth, Tex.	14	2	16	19	12
Houston, Tex.	14	2	16	20	15
San Antonio, Tex.	12	2	14	17	11
El Paso. Tex.	15	2	17	20	16

*Within city of Texarkana, the state tax on gasoline is 2c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 3c applies. In this district outside of the city, the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18 7	*20 2	*22
St. Louis	14.6	16.1	17.9
New York		20	....

*Includes 2c state tax. †Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons

ONTARIO

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Toronto	20.5	3	23.5	27	22
Ottawa	20 5	3	23.5	27	22
Cochrane	25.5	3	28.5	..	27
Ft. William	23.5	3	26.5	30	23.5

MANITOBA

Winnipeg	22.5	3	25.5	29	22.5

SASKATCHEWAN

Regina	27	3	30	34	27

ALBERTA

Edmonton	27.5	3	30.5	34	27.5
Calgary	22.5	3	25.5	29	22.5

BRITISH COLUMBIA

Vancouver	22	3	25	29	23

QUEBEC

Montreal	21.5	5	26.5	30	22
Quebec City	22.5	5	27.5	31	23
Three Rivers	22.5	5	27.5	31	23

NEW BRUNSWICK

St. John	23.5	3	26.5	30	25
Moncton	23.5	3	26.5	30	25

NOVA SCOTIA

Halifax	23.5	5	28.5	32	25
Sydney	23.5	5	28.5	32	25

PRINCE EDWARD ISLAND

Charlottetown	23.5	5	28.5	32	25

Note: In districts surrounding these points 1c additional is added to city price.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c on both; Indiana, 2/25c on both; Kansas, 1/50c on both; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c on both; Missouri, 1/50c on both; Nebraska, 3/50 to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5 to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Crude Oil Prices (in Effect Oct. 29)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.45
Bradford District Oil in National Transit Lines (Bradford District)	3.45
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.35
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.35
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.25
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.10
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.45
Corning Grade in Buckeye Pipe Lines (Ohio)	1.80
Corning, O., heavy grade	1.70
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.75
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.75

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective July 27, 1928

Wooster (Oct. 17)*	$1.77	Princeton	$1.55
Lima	1.60	Illinois	1.55
Waterloo	1.20	Plymouth	1.28
Indiana	1.37	West Kentucky	1.63

*Wooster crude run prior to Oct. 17, 1928 takes price of $1.67.

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia	$2.00
Oil Springs	2.07

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective July 26, 1928

Below 25	$0.60	35-35.9	$1.31
25-25.9	0.67	36-36.9	1.36
26-26.9	0.74	37-37.9	1.41
27-27.9	0.81	38-38.9	1.46
28-28.9	0.88	39-39.9	1.51
29-29.9	0.95	40-40.9	1.56
30-30.9	1.02	41-41.9	1.61
31-31.9	1.09	42-42.9	1.66
32-32.9	1.16	43-43.9	1.71
33-33.9	1.21	44 and above	1.76
34-34.9	1.26		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

July 26, same schedule as Prairie.

Mirando, Tex	$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

July 26, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades:

Below 25	$0.60	27-27.9	$0.75
25-25.9	0.67	30-30.9	0.90
26-26.9	0.74	31-31.9	1.05

Glasscock, Crane, Upton, Winkler Counties	0.65
Chalkfield (Howard Co.)	0.80
Iatan district	0.93
Corsicana heavy	1.00

Carter Oil Co.

(Oklahoma and Kansas)

July 26, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Hutchinson and Carson Counties:

Below 32	$0.69	38-38.9	$1.06
32-32.9	0.76	39-39.9	1.11
33-33.9	0.81	40-40.9	1.16
34-34.9	0.86	41-41.9	1.21
35-35.9	0.91	42-42.9	1.26
36-36.9	0.96	43-43.9	1.31
37-37.9	1.01	44 and above	1.36

Wheeler County:

Below 30	$0.65	37-37.9	$1.11
30-30.9	0.72	38-38.9	1.16
31-31.9	0.79	39-39.9	1.21
32-32.9	0.86	40-40.9	1.26
33-33.9	0.91	41-41.9	1.31
34-34.9	0.96	42-42.9	1.36
35-35.9	1.01	43-43.9	1.41
36-36.9	1.06	44 and above	1.46

Gray County:

Below 29	$0.68	37-37.9	$1.21
29-29.9	0.75	38-38.9	1.26
30-30.9	0.82	39-39.9	1.31
31-31.9	0.89	40-40.9	1.36
32-32.9	0.96	41-41.9	1.41
33-33.9	1.01	42-42.9	1.46
34-34.9	1.06	43-43.9	1.51
35-35.9	1.11	44 and above	1.56
36-36.9	1.16		

WEST TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Winkler, Crane, Upton, Crockett, and Pecos Counties	$0.65

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto and **Cotton Valley.

Effective July 26, 1928

Below 28	$0.81	36-36.9	$1.36
28-28.9	0.88	37-37.9	1.41
29-29.9	0.95	38-38.9	1.46
30-30.9	1.02	39-39.9	1.51
31-31.9	1.09	40-40.9	1.56
32-32.9	1.16	41-41.9	1.61
33-33.9	1.21	42-42.9	1.66
34-34.9	1.26	43-43.9	1.71
35-35.9	1.31	44 and above	1.76

**Cotton Valley, below 36, $0.75. Beginning with 36-36.9, same schedule as above.

Smackover, below 24	$0.75
do 24 and above	.90
Bellevue	1.25
*Urania, La	.90
†East El Dorado	0.75

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La., Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia; on Feb. 6 by La. Oil Refg. Corp.

Aug. 8 The Texas Co., same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.67; 26-26.9, $0.74; 27-27.9, $0.81.

Aug. 7 Magnolia Petroleum met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Aug. 2, 1928

Below 28	$0.75	30-30.9	$0.87
28-28.9	0.79	31-31.9	0.91
29-29.9	0.84	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only

Oil Exporters Can Get Free Data on Holland Agents

AMSTERDAM, Oct. 26.—A trade bureau in Holland which can put American oil companies or other exporters in touch with Dutch companies for representation in that country, has asked NATIONAL PETROLEUM NEWS to announce its purpose and services.

The bureau is the Ver. Bureau voor Handelsinlightingen (Foreign Relations Office). It will furnish information free of charge to firms who are interested in making a business connection in Holland, which information will include the names and addresses of companies the bureau deems reliable for the handling of foreign products, agency or other representation. It will also furnish such statistics as it has available that the manufacturer may require, and will exhibit the manufacturer's samples in its own offices for the inspection of the prospective agent in Holland.

The only charge the bureau makes for this service is for postage, which must be furnished by the company desiring to make a connection. It assumes no responsibility in furnishing any information, but takes the precaution in establishing identity and reputation of companies concerned in either country by requiring bank references as well as well known business references.

The bureau celebrated its twenty-fifth anniversary Oct. 1. It is conducted under the patronage of the Queen Dowager of the Netherlands and is for the purpose of extending the commercial relations of Holland throughout the world.

The bureau is under the direction of W. R. Chambers.

Auto Output Holds Up But Sales Slump

CLEVELAND, Oct. 25.—Automobiles sales have fallen off with the closing of the presidential campaign and the coming of winter, according to *Automotive Industries*, but factory operations continue at a high rate. Output for October is estimated as approximately 400,000 motor vehicles with a possibility that that mark may be exceeded.

The September production in the United States was 413,722 vehicles and in Canada 21,193, a total of 434,915. In August production in the United States was 461,356 vehicles and in Canada 31,245, a total of 492,601. August production was the largest this year and exceeded the output of any month in 1927. These figures were compiled by the U. S. Department of Commerce.

FORMULA
for a
Business Getting 100% Pennsylvania Motor Oil

First—A quantity of 450 Bright Stock (Sharples Process) refined at the *Coraopolis* plant of The Freedom Oil Works Co.

Second—A quantity of 100% Pennsylvania Crude Neutrals refined at the *Freedom* Plant of The Freedom Oil Works Co.

Third—Blend to tested specifications by experienced specialists of this 49 year old organization, producing a line of Freedom Motor Oils which places your business above competition, pleases your dealers, and helps them to hold their customers.

This is the formula used for years by many of the country's leading jobbers. Their growing businesses recommend that you try it. Write for quotations. Immediate shipment can be made in tank cars, compartment tank cars, barrels, or drums.

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 31

Also available for immediate shipment

450 Bright Stock (Sharples Process) which requires less neutral to blend to the ordinary required specifications.

100% Pennsylvania Motor Oils, *blended to your own Specifications*, from Freedom 450 Bright Stock and Freedom 100% Pennsylvania Crude Neutrals.

Freedom Quality Stocks
- 600 Steam Refined
- 635 Steam Refined
- 650 Steam Refined

Freedom 300 Mineral Seal Oil made to Railroad Specifications.

Freedom Filtered Burning Oils.

The Freedom Oil Works Company
Freedom, Penna.
Established 1879
Refineries at Freedom and Coraopolis, Pennsylvania

FREEDOM

En-ar-co
MOTOR OIL
White Rose
GASOLINE

YOU will make money if you handle these nationally advertised brands.

All grades of lubricating oils and greases.

The National Refining Co.
Cleveland, Ohio

Cash that can be stolen is a magnet!

It draws the burglar and hold-up man just as irresistibly as the loadstone draws steel filings.

The York Burglary Chest—the result of nearly half a century in expert safe construction—will bring to your service station the protection needed.

York Safes

YORK SAFE and LOCK COMPANY
York, Pa.

Crude Oil Prices (in Effect Oct. 29)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A.....$1.20	*Grades B.....$1.15
‡Grades B (light crude):	
35-35.9.....$1.37	38-38.9.....$1.43
36-36.9..... 1.39	39-39.9..... 1.45
37-37.9..... 1.41	40 and above.... 1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective July 26, 1928)

‡Salt Creek 29-29.9	$0.95
" " 30-30.9	1.02
" " 31-31.9	1.09
" " 32-32.9	1.16
" " 33-33.9	1.21
" " 34-34.9	1.26
" " 35-35.9	1.31
" " 36-36.9	1.36
" " 37 and above	1.41
Elk Basin	1.48
Grass Creek light	1.48
Big Muddy	1.33
Lance Creek	1.48
Rock Creek	1.33
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.48
‡Cat Creek, Mont.	1.48
Sunburst, Mont	1.65
‡Hogback, N. Mex.	1.48
Artesia, N. Mex.	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick	†Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	....	$ .85	$ .85	....	$ .75	$ .50	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85	$ .85
15-15.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
16-16.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
17-17.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
18-18.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
19-19.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
20-20.9	.85	.85	.85	....	.85	.85	....	....	....	.77	.77	.77	.77	.86	.85	.85
21-21.9	.89	.89	.89	....	.88	.88	.89	....	....	.79	.79	.79	.79	.89	.86	.86
22-22.9	.93	.93	.93	....	.91	.91	.92	....	....	.82	.82	.82	.82	.92	.87	.87
23-23.9	.97	.97	.97	....	....	.94	.95	....	....	.86	.86	.85	.85	.95	.90	.90
24-24.9	1.01	1.01	1.01	1.01	....	.97	.98	....	....	.90	.90	.88	.88	.98	.93	.94
25-25.9	1.05	1.05	1.05	1.05	....	1.00	1.01	....	....	.95	.95	.91	.91	1.01	.95	.98
26-26.9	1.09	1.09	1.09	1.09	....	1.04	1.04	....	....	1.00	1.00	.94	.94	1.04	.97	1.02
27-27.9	1.13	1.13	1.13	1.13	....	1.08	1.07	....	....	1.05	1.05	.98	.97	1.07	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	1.12	1.10	....	....	1.10	1.10	1.02	....	1.10	....	1.10
29-29.9	1.21	....	1.21	1.21	....	1.16	1.15	....	....	1.16	1.16	1.06	....	1.13	....	1.14
30-30.9	1.25	....	1.25	1.25	....	1.20	1.20	....	....	1.22	1.22	1.10	....	1.16	....	1.18
31-31.9	1.30	....	....	1.30	....	....	1.25	....	....	1.28	1.28	1.14	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	....	1.30	....	....	1.34	1.34	1.18	....	....	....	1.28
33-33.9	....	....	....	1.41	....	....	1.35	....	....	1.40	1.40	1.22	....	....	....	....
34-34.9	....	....	....	1.47	....	....	1.40	....	....	....	1.46	1.26	....	....	....	....
35-35.9	....	....	....	1.53	....	....	1.45	....	....	....	....	1.30	....	....	....	....
36-36.9	....	....	....	1.59	....	....	1.50	....	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	....	....	1.55	....	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	....	....	1.60	....	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	....	....	1.65	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	....	....	....	....	....	....	....	....	....	....	....	....

*Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except in Montebello and Wheeler Ridge. It also posts Elwood Terrace at same price as Rosecrans—Dominguez and also posts Santa Maria (Orcutt) and Ventura.

†Kern River down to 12° gravity is 50c; 11-11.9 is 45c.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

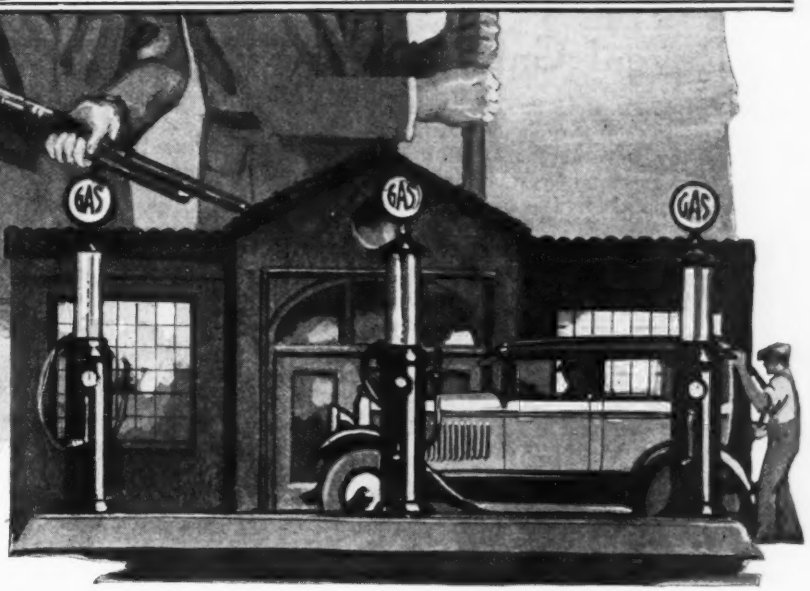
	Oct. 29	Oct. 22
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, ...cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars....cv ..	$0.60	$0.60
Silicate of Soda 40 deg. drums ....cwt.	$0.70-0.75	$0.70-0.75
Sal Soda wks.....	$0.90	$0.90
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton.....	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.....	$18.50	$18.50
Sulfur, flowers of .....cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks.....lb.	3.00-4.50	3.00-4.50
Litharge, powered, casks, cwt.	9.00	9.00

Compounders' Supplies

	Oct. 29	Oct. 22
Vegetable Oils		
Linseed carloads, spot.....lb.	10 00	10.10
Tanks, spot.....	9.20	9.30
Soya Bean, Tanks, coast, lb.	9.625	9.75
Oleic Acid		
Distilled, tanks.....lb.	8.75	8.25
Distilled, bbls.....lb.	9.50	9 50
Saponified, tanks.....lb.	9.00	9 00
Saponified, bbls.....lb.	9.75	9.75
Lard Oils		
Prime Winter Strained...lb.	16.50	16.50
Extra Winter Strained....lb.	14.25	14.00
Extra.....lb.	13 375	13 25
Extra No. 1.....lb.	13 25	13.00
No. 1.....lb.	12 75	12.50
No. 2.....lb.	12 375	12 125
Tallow oil.....lb.	12.25	12.00
Neatsfoot Oil		
Pure, bbls.....lb.	15.25	15.25
Extra, bbls.....lb.	13.25	13.25
No. 1 bbls.....lb.	12.75	12.75
Cold Pressed.....lb.	19.00	19.00
Fish Oils		
Menhaden Oil		
Light Pressed.....gal.	60	60
Light Pressed, tank cars, N. Y. .....gal.	53-54	52-53
White bleached.....gal.	67-68	67-68
Yellow bleached.....gal.	64	64 65
Whale, extra winter bleached, ...gal.	84	82
Naval Stores		
Steam distilled turpentine, N. Y.....gal.	51	49
Steam distilled turpentine, Savannah.....gal.	46	44
Gum turpentine, N. Y....gal.	56	52.30
Gum turpentine, f.o.b. cars Savannah.....gal.	57	48.75
Wood Rosin F, N. Y.....bbl.	$7.85	$7 85
Wood Rosin F, Savn'h..bbl.	$7.15	$7 15
Gum Rosin B, N. Y.....bbl.	$8.70	$8.65
Gum Rosin B, f.o.b. cars Savannah.....bbl.	$7.95	$8.10
Rosin oil. pure.....gal.	62	62
Rosin oil, compounded...gal.	51	51
Pine Tar		
Kiln burnt.....bbl.	$12.50-14.00	$12.50-14.00
Retort.....bbl.	$13.50-15.50	$13.50-15.50
Alcohol		
Denatured, Formula 5, in bbls., per gal.....	54-61	54-61

*Nominal.

The Constant Vigilance of Armed Guards



UNDERWORLD organizations, crime rings and lone bandits in untold numbers are spending all of their time and thought analyzing, looting and plundering your Filling Stations. The constant vigilance of armed guards or their equivalent is necessary to thwart this joint effort directed against you.

Here's a plan that offers you exactly what you need — a way to completely baffle the most determined efforts of organized crime. This plan—a joint service—with neither complications nor conditions, guarantees to protect the cash in every one of your Filling Stations

From Holdups — From Burglary During Transit

We furnish all equipment necessary, including a Cash Protector, No. 26 Diebold Safe and a Recording Device, regularly collect your cash from each location, deliver it to your bank — *and assume all responsibility for all cash after insertion in the Cash Protector.*

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DIEBOLD-BRINKS TU-KE Cash Protection

OIL STOCKS AND FINANCES

National Petroleum News

Income Statements Reveal Gains

CLEVELAND, Oct. 29.—Great improvement in third quarter earnings is shown by several more oil companies. The outstanding report among those made public in the last week is that of the Atlantic Refining Co. In the third quarter of 1927 this company netted $1,333,000. The third quarter this year it increased the amount to $6,219,000. These sums are after all reserves and charges and estimated income taxes.

In the first nine months of this year Atlantic Refining netted $11,908,987, equivalent to $21.71 a share on the $1 stock. Last year its losses on the nine months' business was $144,419.

The excellent recovery of Atlantic Refining is perhaps the chief reason for the rise in price of its stock in recent weeks. There may be some pool operations seeking control of the company, but its recovery of earning power is the reason why such operations are in progress.

Independent Oil & Gas Co., Marland Oil Co., Transcontinental Oil Co., and Warner Quinlan Co. all show improvement both in the third quarter and in the first nine months. Phillips Petroleum Co. has shown improvement in the third quarter but its earnings before reserves for the first nine months are lower than for the first nine months of 1927.

American Republics Corp., a J. S. Cullinan interest, while making no large gain in the nine months, showed notable improvement in the third quarter.

Earnings statements of the last week follow:

Oil Company Earnings

Third Quarter	1928	1927
American Republics	$167,735	*$54,184
Atlantic Refining	6,219,000	1,333,000
Beacon Oil	†902,068	
Independent Oil & Gas	2,445,954	884,801
Marland Oil Co.	†569,367	*1,040,311
Phillips Petroleum	‡5,846,156	‡4,014,286
Transcontinental Oil	†825,066	†224,037
Warner Quinlan Co.	513,659	236,223

First Half	1928	1927
Beacon Oil	†507,065	
Lago Oil & Transport	†1,232,728	†2,251,672
Mexican Petroleum Co., Del.	†4,144,758	†10,789,252

Nine Months	1928	1927
American Republics	79,374	77,932
Atlantic Refining Co.	11,908,987	*144,419
Beacon Oil	†955,352	
Independent Oil & Gas	2,138,973	1,843,935
Marland Oil	*1,348,784	*5,277,972
Phillips Petroleum	‡12,366,133	‡15,643,159
Transcontinental Oil	†1,248,032	*83,350
Warner Quinlan Co.	1,160,321	584,037

*Loss. †Before federal taxes. ‡Before reserves.

Financial Notes

H. F. Wilcox Oil & Gas Co.—New York Stock Exchange has listed 428,967 shares of no par common stock. This company paid 25 cents a share per quarter but passed its Aug. 10 dividend.

National Transit Co.—L. C. Longaker was elected vice-president and L. A. Lockwood a director to fill places made vacant by death of C. E. Martin.

Royal Dutch-Shell—Flintkote Co., the manufacturer of roofing and other asphalt products in which the Royal Dutch-Shell group recently acquired an interest, has declared a 100 per cent stock dividend.

Tocuyo Oilfields of Venezuela—This British company is offering 1,500,000 £1 shares of stock. It is sponsored by the Central Mining Co., Rand Mines, and Trinidad Leaseholds. It will take over the North Venezuelan Petroleum Co. oil right to 85,600 acres at El Mene, according to London dispatches.

Cities Service Issues $30,000,000 Bonds

CLEVELAND, Oct. 27.—Cities Service Co. is offering through a syndicate headed by Harris, Forbes & Co. and Halsey, Stuart & Co., $30,000,000 35-year 5 per cent gold debentures. The offering price is 97½ and interest. The debentures are dated Nov. 1.

Each debenture carries a non-detachable warrant, giving the right to buy 15 shares of Cities Service common stock at $72 a share from Nov. 1, 1928, to May 1, 1929, and at an advance of $2 a share each six-month period until Nov. 1, 1931. The price in the final period will be $82 a share.

The company in its prospectus says it has crude oil production of about 49,000 barrels daily, seven refineries and 1200 miles of pipe lines, besides electric, gas and transportation utilities serving 4,000,000 persons.

Proceeds from the issue will be used to finance additions made to or to be made to properties of the operating subsidiaries. Additions to property, it is understood, will include a refinery in Iowa.

The debentures are callable at 105 at any interest date through Nov. 1, 1938, and at varying reductions in the redemption price thereafter.

Shell Union Shares In Roofing Deal

NEW YORK, Oct. 27.—Shell Union Oil Corp. is sharing in the partnership arrangement the Royal Dutch-Shell group recently formed with the Flintkote Co. of Boston, manufacturer of roofing and asphalt products. President J. C. Van Eck, president of Shell Union, said:

"The Royal Dutch-Shell group has just concluded a partnership arrangement with the Flintkote Co. of Boston, under which the Royal Dutch-Shell group will provide substantial new capital. Shell Union Oil Corp. is participating in this partnership.

"The association with the Royal Dutch-Shell group should greatly facilitate the expansion of the business of the Flintkote Co. outside the United States owing to the world wide organization of the Royal Dutch-Shell group.

"We believe that this arrangement will be mutually beneficial to the shareholders of both concerns."

The additional company will consist of $8,000,000 or $9,000,000. Additional arrangements are pending by which the Flintkote Co. will have approximately $19,000,000 capital, it is said.

The Flintkote company has two plants in New Jersey and one each in Chicago, Cincinnati, and New Orleans. The Royal Dutch-Shell's New Orleans Oil Refining Co. has a refinery at New Orleans, and the Shell Union through the Roxana Petroleum Corp. has refineries at Arkansas City, Kans., Wood River, Ill., and East Chicago, Ind. The Royal Dutch-Shell group owns more than two thirds of the Shell Union.

McColl Frontenac Oil Co.—Reports from Montreal are that earnings of this company in 1928 will exceed $1,200,000, an estimate made earlier this year. This company recently contracted with the Shell Co. of Canada to supply it with Cyclo gasoline.

Skelly Oil Co.—Richard T. Lyons who was in charge of this company's Texas and Oklahoma land division, has been elected a director and vice-president.

Simms Petroleum Co.—Dividends resumed with declaration of 40 cents a share payable Dec. 15 to stock of Nov. 30 record. The last previous dividend was 37½ cents in April, 1927. In 1925 and 1926 the company paid 50 cents semi-annually.

Veribrite SIGNS
CHICAGO

PORCELAIN ENAMELED IRON SIGNS

SINCLAIR H-C GASOLINE

This Veribrite sign helps Sinclair dealers to more gallonage and greater profits.

If the finest sign is none too good for *your* dealers—

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Division of GENERAL PORCELAIN ENAMELING & MFG. CO.

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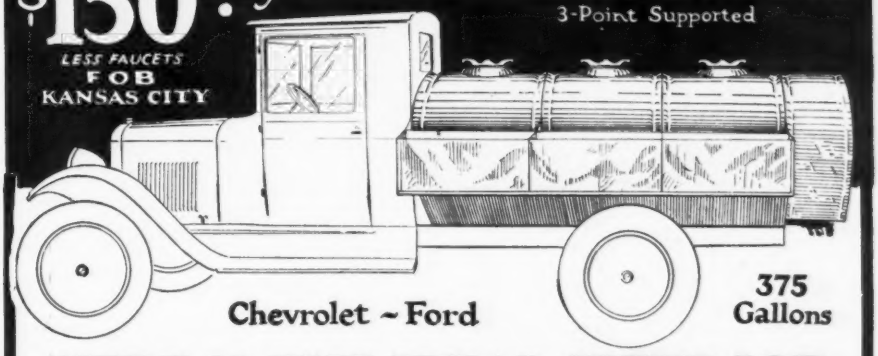
$150.00 for this Convertible TRUCK TANK

3-Point Supported

LESS FAUCETS F.O.B. KANSAS CITY



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375 Gallons

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DESIGNED for any of the popular light or medium truck chassis. Convertible feature makes it adaptable to varying road, weather and seasonal trade conditions. For instance, side can racks may be completely detached when not in demand or when bad going makes extreme lightness imperative. Or, sections of side racks may be replaced by our horizontal lube tanks rear, or barrel carrier forward, holding a full sized barrel in upright position. Any of these conversions may be accomplished in the space of one hour by our special combination fittings.

The above price includes side can racks, but less faucets, f.o.b. Kansas City. Faucets, side lube tanks and barrel carriers, extra.

COLUMBIAN STEEL TANK COMPANY

KANSAS CITY — MISSOURI

Partition mounting reduces weight and lowers tank.

COLUMBIAN Partition Mounted-3 Point Supported TRUCK TANK

3 point support solves torque and vibration problem.

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REFINERS OF OKLAHOMA, TEXAS AND LOUISIANA

PETROLEUM

Refined Oil — Naphtha — Paraffine Wax
Gasoline — Gas Oils — Petroleum Coke

FUEL OILS

LUBRICATING OILS

Cylinder — Engine — Cordage

RED AND PALE PARAFFINE OILS

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Oct. 27 Sales	First	High	Low	Last	Change
37⅛	27⅝	38	27⅛	(sh) 922.075	N.P.	Amerada Corp	50cQ	Oct. 31, 28	25,400	31½	33¾	31¼	32	+ ⅛
82⅛	35⅛	85	51¼	(sh) 209.180	N.P.	American Republics Corp			30,200	66⅛	76⅝	66⅛	71⅝	+ 5⅛
50¼	35	53¾	37½	$56.000.000	$ 25	Associated Oil	50cQ	Sept. 29, 28	200		48⅝	47¼	48	— ½
131⅛	104	239⅜	95¾	50.000.000	100	Atlantic Refining	$1Q	Sept. 15, 28	171,600	193	*239⅜	188½	227	+36
119	115½	118¼	114½	20.000.000	100	do pfd	$1 75Q	Aug. 1, 28	210	115½	115½	115	115½	+ ½
35½	20¾	45⅞	20½	30,971,225	25	Barnsdall Corp. A	50cQ	Oct. 31, 28	177,900	44⅝	45¼	41⅛	42¾	— 2¾
32½	20½	44	22	581,850	25	do B	50cQ	Oct. 31, 28						
18¼	14	23½	12¼	946.518	N.P.	Beacon Oil			43,900	22	22½	21	21¾	— ⅛
32⅞	20	35	24	$1,524.150	25	California Petroleum	25cQ	Oct. 1, 28						
96¾	65	94⅞	70	20.980.400	100	General Asphalt			24,500	72⅛	74½	69⅛	73	+ 1
144⅞	107¼	141⅜	111	6,662.200	100	do pfd	$1.25Q	Sept. 1, 28	600	112½	116½	112	116	+ 3
175¾	60⅛	167	127	25,000.000	100	Houston Oil			14,600	138	144⅜	137	137	— 2
32¾	17⅝	34¼	21¾	(sh) 659.000	N.P	Independent Oil & Gas	37½cQ	Oct. 31, 28	58,700	31⅜	*34¼	30⅛	32¾	+ ⅞
12⅛	7⅝	39¾	9	$3,582.670	$ 10	Indian Refining	....	Dec 15, 20	25,700	32⅞	33⅞	31⅛	31¾	— ⅞
12	7¼	33⅜	8½	4,550.110	10	do ctfs	....		5,700	29½	31	27⅜	28⅛	— 1⅛
112	99	250	101	2,296.400	100	do pfd	....	Dec. 15, 21	400	160	165	160	160	—13¾
37¾	20½	39⅛	27⅜	(sh) 3,992.234	N.P.	Lago Oil & Transport	75cQ	Aug. 2, 28	4,900	32⅝	34½	32⅛	33¼	+ ¼
18⅜	10	19¾	9⅜	(sh) 1.187.003	N.P.	Louisiana Oil Refining			61,100	17½	17⅝	16½	16⅞	— ⅞
97	85¼	101	78	$4,000.000	$100	do pfd	$1⅜Q	Aug. 15, 28	60	91½	91½	91	91½	+ 1¼
22¾	12	25½	12½	(sh) 330.000	N.P.	Maracaibo Oil	....		19,100	19¼	21⅞	18¾	19½	+ ¼
58½	31	44½	33	(sh) 2.316.851	N.P.	Marland Oil Co	....	Mar. 31, 27	191,300	39⅞	44½	39⅜	43¾	+ 4⅛
320	200	360	250	$45,942.800	$100	Mexican Petroleum	$3Q	Oct. 20, 28						
....	....	....	....	12,000.000	100	do pfd	$2Q	Oct. 20, 28						
9¼	3	41½	4⅝	(sh) 995.500	N.P.	Mexican Seaboard	....	Nov. 15, 24	71,100	37⅞	38⅛	35	36⅛	— 1¼
39⅜	25½	38⅞	25⅛	(sh) 1.857.461	N.P.	Mid-Continent	....	Aug. 1, 27	117,300	35¼	*38⅜	35	37⅜	+ 2⅜
105	97	115⅛	103¼	$6,718.000	$100	do pfd	$1.75Q	Sept. 1, 28	100	112½	112½	112½	112½	— ½
3⅜	1⅝	7⅜	2⅜	24,060.470	10	Middle States	....	July 1, 23	62,900	5⅝	6⅜	5½	5⅜	+ ⅛
2¾	1⅜	5⅞	1½	5,739.750	10	do ctfs	....		6,300	3⅞	5	3⅞	4	+ ⅛
1⅞	1	2¼	1	(sh) 3,500.000	N.P	Pacific Oil	....		8,900	1	1⅜	1	1¼	+ ⅛
65⅛	40⅛	53¾	38¼	$50.000.000	$ 50	Pan American P. & T	....	Oct. 20, 27	89,400	47	51⅞	46⅜	50	+ 1½
66⅝	40¼	54⅝	37⅝	121.100.000	50	do B	....	Oct. 20, 27	157,200	50¼	53⅞	48⅝	52	+ 1½
37⅞	16¾	28⅜	15⅛	(sh) 400.000	N.P.	Pan American	....	Jan. 30, 27	1,600	17½	17¾	17½	17½	0
18⅞	8	21¾	11½	(sh) 199.370	N.P	Panhandle P. & R	....		24,400	14⅝	17⅜	14½	16⅜	+ 2¼
83	54	106½	70	$2,935.200	$100	do pfd	....	July 2, 23	700	80	90¼	80	90	+10
60¼	36¼	45¾	35¼	(sh) 2,406.796	N.P.	Phillips Petroleum	37½cQ	Oct. 1, 28	139,900	42⅞	*45¾	42½	44¼	+ 1⅜
1⅛	½	4⅛	½	$29,622.925	$ 25	Pierce Oil	....		22,100	3⅛	3⅝	3	3¼	+ ¼
24	13½	50	16¼	15.000.000	100	do pfd	....	Feb. 1, 22	4,500	38	41⅜	38	39	0
5⅛	2½	6¾	3⅜	(sh) 2.500.000	N.P.	Pierce Petroleum	....		30,600	5⅜	6	5¼	5¾	+ ⅜
33⅞	16¾	26⅛	16	$37,450.850	$ 50	Producers & Refiners	....	Sept 15, 23	8,800	24	25⅜	23¾	24⅛	+ ⅜
50	36⅞	46⅞	41	2,845.350	50	do pfd		May 1, 25	220	45	45	43	43½	— 1½
33½	25	28½	19	75.952.250	25	Pure Oil Co	12½cQ	Sept 1, 28	138,700	25	*28½	25⅝	27⅝	+ 1⅝
115½	111⅜	115	108	13.000.000	100	do 8% pfd	$2Q	Oct. 1, 28	320	115	115	112¾	113	0
28⅝	25⅛	51⅛	24	$43,764.450	$ 25	Richfield Oil	‡25cQ	Aug. 15, 28	34,300	48¾	49½	47¼	47½	— 1⅛
54½	44¼	64	44⅝	(sh) 585.293	13.40	Royal Dutch N. Y. shares	$1.879	Aug. 3 28	4,900	63¼	63⅜	62	62	— 2
47⅞	41⅜	57½	40⅝	(sh) 67.300	£2	Shell Transport & T	$1.455	July 23, 28	400	57⅛	*57½	56	56	+ 1¾
31¾	24⅝	31⅞	23¼	(sh) 10.000.000	N.P.	Shell Union Oil	35cQ	Sept. 30, 28	138,300	29¼	*31⅞	29	31⅞	+ 2⅜
26⅝	14¼	25⅛	18⅛	$7,208.080	$ 10	Simms Petroleum	....	Apr. 1, 27	58,400	24⅞	*25⅛	23½	24¾	0
22⅜	15	37¼	17⅜	(sh) 4,503.031	N P	Sinclair Consolidated		May 31, 24	114,300	30⅛	*37¼	39⅛	37½	+ 7⅝
104½	97	109½	102½	$16.310.100	$100	do pfd	$2Q	Aug. 15, 28	500	108¼	109	108¼	109	+ 1
37⅜	24⅛	39	25	27.396.590	25	Skelly Oil Co	50cQ	Sept. 15, 28	69,700	37¼	*39	38⅝	38	+ 1
60¾	50⅜	63⅞	53	(sh) 13.016.434	N.P.	S. O. California	62½cQ	Sept. 15, 28	54,500	61⅛	63⅝	61⅛	62⅝	+ 1⅛
41⅜	35⅛	49	37¾	$610.195.375	$ 25	S. O. New Jersey	‡25cQ	Sept. 15, 28	106,200	46⅛	47½	45⅝	46¾	+ 1
34⅛	29¾	41⅛	28¾	431.973.275	25	S. O New York	40cQ	Sept. 15, 28	120,200	35⅜	36⅝	35	35⅞	+ ¾
34⅞	30	65⅛	31½	(sh) 1.206.463	N.P.	Sun Oil	25cQ	Sept. 15, 28	10,100	59⅜	*65⅛	58¼	63¼	+ 3¼
101⅝	99	109½	100	$5.000.000	$100	do pfd	$1.50Q	Sept. 1, 28	260	105½	105½	105	105½	0
6½	3⅛	11⅞	2⅛	(sh) 1.186.078	N.P.	Superior Oil Corp	....	Dec. 20, 20	391,500	9	*11⅞	9	11¼	+ 2¼
58	45	72⅛	50	$210.577.050	$ 25	The Texas Corp	75cQ	Oct. 1, 28	104,200	67½	69¼	66⅞	68⅝	+ 1⅝
18⅛	12	17½	12⅛	8.380.340	10	Texas Pacific Coal & Oil	....	Jan. 3, 28	50,400	16⅛	17½	15⅝	17¼	+ ⅞
29⅛	19	36	19⅝	(sh) 2,168.498	N.P.	Tide Water Oil Co	20cQ	Sept. 29, 28	3,200	34	34½	32	34	— ½
90½	85	94½	87	$20.705.200	$100	do 5½% pfd	$1.25Q	Aug 15, 28						
19⅛	15⅜	24⅜	14⅜	(sh) 4.824.766	N P.	Tide Water Associated	....	Aug. 1, 27	71,600	23	23½	22½	22½	— ½
90¾	85	90¾	82⅛	$72.745.958	$100	do pfd	$1.50Q	Oct. 1, 28	1,300	88⅝	89	88½	89	+ ½
10¾	3⅜	10¼	7	(sh) 3.842.029	N.P.	Transcontinental Oil			112,400	8⅜	9	8⅛	8¾	+ ⅝
56⅛	39⅛	57	42¾	$40.841.100	$ 25	Union Oil of California	50cQ	Aug. 10. 28	48,500	53	56	52	53	+ 1
127½	94	128⅛	110	31,061.200	100	Union Tank Car Co	$1 25Q	Sept. 1, 28	1,900	113	120	113	117	+ 3
34½	24½	44⅛	26	(sh) 357 197	N.P.	Warner Quinlan	50cQ	Oct. 1. 28	59,900	42½	42½	40⅝	41	— 1⅜
27⅛	20	30¼	20¼	(sh) 490.000	N P	White Eagle Oil & Refining	50cQ	Oct. 20 28	15,400	29⅞	30⅛	29⅛	29⅞	— ⅛
....	....	19¼	18⅛	(sh) 418.967	N.P.	Wilcox Oil & Gas	....	May 10, 28	2,600	18¼	19¼	18⅞	18⅞	0

•New High †New Low ††Ex-dividends ‡Also extras s-Stock Total Sales 3,687,100

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Oct. 26 Sales	First	High	Low	Last	Change
....	....	4	2½	N.P.	Ark. Nat. Gas (new)	30,835	3½	4	3½	3⅞	+ ¼
....	....	7½	6¾	N.P.	do pfd	5,712	7¾	7½	7¼	..	0
98¾	80¼	120¼	90¾	100	Colombia Gas	....	....	....	....	....	....
107¼	100	124	107	100	do pfd	....	....	....	....	....	....
15	7⅜	10	6⅞	10	Devonian Oil	633	7¼	9⅛	7¼	9⅛	+ 1⅞
....	....	15	9	10	Dixie Gas & Util	....	....	....	....	....	....
....	....	95	75	100	do pfd	15	75	75	†75	75	—10½
117¾	115	116	115	100	Duquesne Light pfd.	....	....	....	....	....	....
....	....	85	80½	100	Fayette County Gas	....	....	....	....	....	....
12¼	6	22	12	N.P.	Houston Gulf Gas	....	....	....	....	....	....
59¼	37¼	58⅜	48⅝	$ 25	Lone Star Gas	2,499	57¼	57½	56½	57⅜	— ⅛
....	....	38	35	25	Petroleum Exploration	100	35	35	35	35	— 1
....	....	50	50	....	Phoenix Oil pfd	....	....	....	....	....	....
3¼	3	4	3	5	Pittsburgh Oil & Gas	....	....	....	....	....	....
8	5⅛	7⅛	6	10	Salt Creek Cons	....	....	....	....	....	....
26⅛	17	22	16⅜	10	Tidal Osage	20	21	21	21	21	+ ⅜
43	33	33⅜	30½	N.P.	Waverly Oil Wks. A	35	31½	32	31½	32	+ ½
....	....	19	17	$ 25	Wiser Oil	....	....	....	....	....	....

•New high record †New low.

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Oct. 26 Sales	First	High	Low	Last	Change
....	....	....	....	....	Ark. Gas (old)	....	....	....	....	....	....
95	88	132	120	25	Gulf Oil	....	....	....	....	....	....
....	....	115	115	....	Houston Gulf Gas pfd.	....	....	....	....	....	....
10¾	5⅛	9	5⅛	25	Leonard Oil & Dev	....	....	....	....	....	....
2¾	1⅝	..	..	5	Pittsburgh Oil Dev	....	....	....	....	....	....
31	19	27	16¾	5	Plymouth Oil	20,195	24	*27	24	26¼	+ 3
6	5	4⅝	4	5	States Oil	....	....	....	....	....	....
3⅞	1⅜	4½	2¼	1	Texon Oil & Land	200	4	4	4	4	0
23¾	18	18	15	10	Tidal Osage Non-vgt.	....	....	....	....	....	....

•New High †New Low x Ex Dividend

Cleveland Stock Market

Oct. 26	Par Value	Bid	Asked	Last Sale
Canfield	100	156	165	155
do pfd	100	102	...	102
Fred G. Clark	10	6½	7	6½
National Refining	25	37⅝	37	37
do pfd	100	130½	134	133
Paragon Refining Co	25	18	18½	19
do pfd	N.P.	42	44	42
do ctf. of deposit	...	...	18½	18¾

x Ex dividend.

Ohio Oil Co.—Reports from Denver are that Ohio is increasing its holdings of gas and prospective oil lands in northwestern Colorado and southwestern Wyoming. This is in anticipation of a proposed gas line from that region into central Utah and southern Idaho. Ohio has bought the properties of the Custer Petroleum Co. on Hiawatha dome. It recently acquired a 60 per cent interest on the Canon Creek structure from the Reiter-Foster Oil Co. and a 51 per cent interest in Reiter-Foster acreage on Hiawatha dome.

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We require several thoroughly experienced draftsmen in our Oil Refinery Department, capable of designing the equipment for Pipe Still Distillation Units, such as the Still, Fractionating Towers, Pump House, Piping, etc. Opportunity for advancement. Give complete details in your application, age, past experience, salary and when available.

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Major oil company operating in Eastern states wants an experienced traveling supervisor to cover its territory superintending, and personally helping with, the construction of bulk plants and filling stations.

Applicants must be familiar with gasoline pump and tank installations, gasoline filling station construction, bulk plant erection, and pipe work in all its branches. In reply state age, education, and salary desired. Give comprehensive outline of your previous experience, including the names of the companies you worked for.

Address Box 195

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Capable of directing a force of salesmen and handling several hundred bulk plants and filling stations.

Must have had some years of experience in the successful operation of filling stations, bulk plants and the handling of salesmen. He must be able to produce a substantial increase in the volume of sales.

This is a most unusual opportunity for a man of real ability.

Salary is large enough to attract the highest type of sales manager.

On account of the size of this Company and its strong position in the industry, advancement is limited only by the capacity of the man.

All communications will be held strictly confidential and only the highest type of man need apply.

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Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Oct. 27 Sales	First	High	Low	Last	Change
21⅜	17⅞	22⅛	17	£ 4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	1,800	18¾	18⅞	18⅝	18¾	0
21½	17⅝	20½	16⅝	.....	£ 1	do cts. non-voting	.....	.....	600	18¾	18¾	18⅜	18⅜	— ⅛
3¾	¾	5	1¼	(sh) 500.000	N.P.	Atlantic Lobos	.....	.....	200	3⅛	3⅛	3	3⅛	— ¼
6½	2½	9¾	3¼	$ 10,000.000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	44½	1,000.000	25	Borne Scrymser	‡$1S.A.	Oct. 15, 28	100	45¾	45¾	†44½	44½	— 1½
60	45	76	58	10.000.000	50	Buckeye Pipe Line	‡$1Q	Sept. 15, 28	300	66¼	66¼	65½	66	— 1
126	76½	161	117¼	3,000,000	25	Chesebrough Mfg.	‡$1Q	Sept. 29 28	1,000	138	147	138	146	+ 8
22⅝	16¼	23	16	36,123,350	10	Continental Oil	.....	Dec. 15, 27	26,400	17⅛	18¼	17	17⅝	+ ⅝
137	89	114	88	1,500,000	50	Cumberland Pipe Line	$15	Sept. 15, 28	.....	.....	.....	.....	.....	.....
68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	250	68¾	69	67	67¼	— 2¼
13½	3⅛	13	5	16,000.000	100	Galena Signal Oil	.....	June 30, 25	800	7½	7⅝	7½	7⅝	— ⅛
59¾	23	87¾	27	4,000.000	100	do new pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
60⅛	35½	89¾	35	2,000.000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
68½	54	86⅝	60	73,685,700	25	Humble Oil & Refining	‡30cQ	Oct. 1, 28	38,800	82⅛	*86⅝	81½	85¼	+ 3¼
182	123¾	245	176½	20.000.000	100	Illinois Pipe Line	$6S.A.	June 15, 28	250	220	222¼	219¾	222¼	+ ¼
64¾	37¾	84¾	56¼	(sh) 6,591,458	N.P.	Imperial of Canada	‡25cQ	Sept. 1, 28	3,200	83	83¾	81⅞	83¾	+ ¼
94½	61	91⅞	74⅞	$ 5,000,000	$ 50	Indiana Pipe Line	‡$1Q	Aug. 15, 28	700	88½	89¾	85	85	+ 1⅞
39	28¼	45¼	35	(sh) 7,123,544	N.P.	International Petroleum	25c	June 30, 28	98,500	41⅜	45¼	41¼	44¼	+ 3
24	13¼	32⅜	19⅜	6,363,350	12.50	National Transit Co	‡25cQ	Sept. 15, 28	1,200	24	24	23¼	23½	— ⅞
44½	31¼	75	37½	5,000.000	100	New York Transit	.....	July 15, 26	250	70	*75	70	75	+ 5
100	70	125	56½	2,000.000	50	Northern Pipe Line	(a)$3S.A.	July 2, 28	100	63	63	63	63	0
67⅞	52	68¼	58	60.000.000	25	Ohio Oil Co	50cQ	Sept. 15, 28	6,600	61¾	65	61¼	63½	+ 2½
39	12	84	28	10,000.000	25	Penn Mex. Fuel	$1.25	May 31, 28	900	40	41⅞	38¼	39	— 2½
55½	45⅝	56	46	60,479.000	25	Prairie Oil & Gas	.....	Aug. 31, 27	67,500	47	55¾	47	53¼	+ 6¼
190	132	223	172	81,000.000	100	Prairie Pipe Line	$3.50Q	Oct. 31, 28	3,900	191	215	191	208	+ ⅛
201½	175½	189½	167	4,000.000	100	Solar Refining	$5S.A.	June 20, 28	300	180	*189½	180	189½	0
27¼	15½	35⅛	12	1,000.000	10	Southern Pipe Line	$2	Dec. 1, 27	100	14½	14½	14½	14½	— ⅛
41½	35	68	36¾	20,000.000	25	South Penn Oil	‡50cQ	Sept. 29, 28	16,300	62½	67⅞	62⅜	65	+ 1⅞
83	55½	100¾	70	3,500.000	100	South West Pa. Pipe Lines	$1Q	Oct. 1, 28	150	80	80	80	80	— 3
81½	64⅝	83⅝	70⅞	230,788,513	25	S. O. Indiana	‡62½cQ	Sept. 15, 28	69,100	77¾	82⅜	77¼	81¼	+ 5⅝
20⅞	14⅜	27¾	15	8,000.000	25	S. O. Kansas	.....	June 16, 24	38,000	20⅜	22⅜	20	21¾	+ ⅛
130	111½	154⅞	122¼	17,103,011	25	S. O. Kentucky	$1Q	Sept. 29, 28	53,700	139⅛	*154⅞	138¾	153	+13⅝
49½	40	49⅞	39⅞	4,601,100	25	S. O. Nebraska	63cQ	Sept. 20, 28	1,800	43¾	*49⅞	43¾	46⅜	+ 2⅛
87½	72	95	71	14.000.000	25	S. O. Ohio	62½cQ	Oct. 1, 28	1,250	92½	93¾	92	93	+ ¼
122	117¼	125	116	7,000.000	100	do pfd	$1.75Q	Sept. 1, 28	30	116½	119	116½	119	+ 1
21	14½	26	16	861,466	25	Swan Finch Co	30c	June 30, 28	.....	.....	.....	.....	.....	.....
...	....	87⅛	72	126,154,100	25	Vacuum Oil	75cQ	Sept. 20, 28	9,700	79¾	82¼	79¾	81¾	+ ⅜

•New high †New low xEx dividend ‡Also extras. (a)$50 Special Sept. 1, 1928

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Oct. 27 Sales	First	High	Low	Last	Change
2⅛	.55	1½	.65	$ 5	Amer. Con. Oilfields	87,300	1	1⅛	.76	.88	— ⅛
7⅛	2¾	6⅝	3⅛	N.P.	Amer. Maracaibo	60,800	4½	5	4½	4⅞	+ ⅛
2¾	1	4¼	2¼	$ 10	Argo Oil	300	2½	2½	2½	2½	0
9¾	6¾	10¼	7⅝	10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
...	....	21	3⅞	....	Barnsdall deb. war	117,900	20⅜	*21	17	18¼	— 2⅜
40	20½	49	32¾	N.P.	British American	1,000	46¾	48	46⅜	48	+ ½
28¼	15½	23⅞	12½	25c	Carib Syndicate N.	16,800	14¼	15¾	14	15¾	+ 1⅛
...	....	....	....	....	do ctfs. of dep.	.....	.....	.....	.....	.....	.....
58¾	40¼	72½	54	$ 20	Cities Service	33,700	71½	71⅝	69¾	70½	— 1¼
95⅝	87	103½	94½	100	do pfd	1,400	99¾	99⅞	99	99⅞	0
8⅞	7⅜	9⅝	8⅛	10	do pfd. B	500	9¼	9¼	9¼	9¼	0
29¼	22½	94	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅛	1⅛	2¼	1⅛	1	Colombia Syndicate	73,100	1¼	1¼	1⅛	1⅛	— ⅛
9⅜	6⅜	15⅜	6⅝	10	Consolidated Royal	100	6⅝	6⅝	6⅝	6⅝	— 1/16
14⅞	9½	17½	10	N.P.	Creole Syndicate	41,400	12⅝	13¾	12½	12⅞	+ ⅜
3	.50	3¼	.76	N.P.	Crown Central	300	1⅜	1½	1⅜	1⅜	— ⅛
12	4	33¾	8½	N.P.	Darby Petroleum	139,800	30⅛	*33¾	29¼	30½	0
11⅜	4	13½	7⅞	....	do trust ctfs.	.....	.....	.....	.....	.....	.....
2⅛	.74	22	1	N.P.	Derby Oil & Refining	8,700	1 1/16	2⅜	1 1/16	1⅞	— ¾
16⅜	4	18⅞	7⅛	N.P.	do pfd	6,800	15½	*18⅞	15	18	+ 5
3¼	1	2	1	N.P.	Gibson Oil	.....	.....	.....	.....	.....	.....
2	.40	.53	.15	N.P.	Gilliland ctfs.	.....	.....	.....	.....	.....	.....
118	86¼	148½	101⅛	$ 25	Gulf Oil Corp.	31,700	125¼	139¾	124⅝	135	+10
2½	.80	7⅞	1	10	Intercontinent Pet.	36,800	1¾	2	1⅝	2	+ ⅛
2¼	1½	3	1¼	N.P.	Kirby Petroleum	6,700	2¼	2¾	2¼	2⅝	+ ⅜
10⅞	5⅛	9⅛	5⅛	N.P.	Leonard Oil & Dev.	7,800	5¼	5¾	5⅛	5¾	+ ⅜
27½	20	43⅜	20	N.P.	Lion Oil & Refg.	28,500	41⅞	42⅞	40	40	— 3⅜
59⅝	37	59⅞	48⅝	$ 25	Lone Star Gas	2,800	57⅛	57½	56	57½	0
2⅞	.80	1⅞	.54	1	Magdalena Synd.	7,100	95	95	73	75	+ 3
21⅛	20⅞	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	34½	N.P.	Margay Oil	200	35	35	34½	34½	0
3	1⅜	40⅛	40¼	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	3¾	N.P.	Mexico-Ohio Oil	200	3⅞	3⅞	†3¾	3⅞	— ⅛
1⅜	1	1¾	.76	$ 1	Mountain & Gulf	8,800	.80	*1¾	.80	1⅛	+ ¼
29¾	22¾	28⅜	19½	10	Mountain Producers	3,400	21¾	22	20¾	22	+ ¼
5⅞	4⅝	5⅝	4¼	5	New Bradford	3,000	4⅜	5	4¼	5	+ ½
6¼	4	5½	3	10	New England Fuel	.....	.....	.....	.....	.....	.....
16	9¼	11⅝	7⅛	1	New Mex. & Ariz.	700	8	8⅜	7¾	7¾	— 1¼
13⅞	9	15¼	11⅜	25	New York Oil	.....	.....	.....	.....	.....	.....
....	....	40	39¼	....	North Amer. Oil Cons.	.....	.....	.....	.....	.....	.....
12¾	9½	13¼	10⅜	N.P.	North Cent. Texas	600	10⅜	10⅞	†10⅝	10¾	0
23⅞	21¼	...	...	....	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2¼	N.P.	Pandem	1,200	2½	2⅝	2⅜	2½	0
12⅜	7	15⅝	8½	N.P.	Panapec Oil	23,000	12½	12⅝	11⅝	12	— ⅛
9	7⅜	20	10⅝	$ 25	Paragon Refg.	.....	.....	.....	.....	.....	.....
.37	.25	9	4	N.P.	Peer Oil Corp.	.....	.....	.....	.....	.....	.....
13⅜	5⅜	7¾	4⅞	10	Pennok Oil	.....	.....	.....	.....	.....	.....
....	....	4½	3⅜	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14½	8	25	Red Bank Oil	400	9⅛	9⅛	9⅛	9⅛	0
15½	3⅜	13	4¼	N.P.	Reiter-Foster	4,500	9⅞	9⅜	8¾	9	— ½
28⅝	15	31½	18	$ 25	Richfield Oil pfd.	200	23⅝	24⅛	23⅝	24⅛	— ⅛
....	....	23	7½	....	do warrants	.....	.....	.....	.....	.....	.....
7	4½	9⅞	4⅝	N.P.	Ryan Consolidated	4,800	6	7	6	6	+ ¼
8	5¼	7¼	5⅝	$ 10	Salt Creek Cons.	200	5¾	5¾	5¾	5¾	0
35⅛	27¼	35	23¼	10	Salt Creek Prod.	6,100	25	25	23½	24⅜	— ⅝
7	1¾	3½	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
....	....	4⅝	3	1	Texon Oil & Land	62,800	3 11/16	4 1/16	3⅞	3 11/16	+ 1/16
26½	17	22⅞	13	10	Tidal Osage	3,200	20½	20½	15⅜	16⅜	— 3⅜
23¾	15	21¼	13⅜	10	do non-voting	4,500	19⅜	19¼	15⅜	15¾	— 3½
92	63½	87	75	100	Transcontinental pfd.	100	81	81	81	81	+ ½
23¼	7	53½	18	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
7⅜	4¼	8⅞	4⅜	5	Venezuelan Petrol.	516,600	7¼	*8⅞	7⅛	8⅜	+ 1⅛
32⅜	19½	25	15¼	N.P.	Wilcox Oil & Gas	300	17½	18	17½	18	+ ½
8	4¾	8¼	4⅞	$ 1	Woodley Petroleum	200	5	5	5	5	— ½
6	1¾	8¾	2⅜	25	Y Oil & Gas (new)	900	4½	4⅞	4½	4⅞	+ ½

•New High †New Low xEx Dividend

New York Curb Bonds

Week Ending Oct. 26

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	112½	110	110¼	—1¼
Cities Serv. 5s '66	94	92⅝	93¾	+ ⅜
Cities Serv. 6s '66	103⅝	103⅝	103⅝	0
Cities Serv. G 5½s '42	93⅝	93½	93½	0
Empire O & R 5½s '42	92½	92¼	92¼	— ¼
Galena Oil 7s '30	100¾	100⅝	100⅝	0
Gulf Oil 5s '37	100¾	100½	100½	0
Gulf Oil 5s '47	100½	100¼	100½	0
Independent Oil 6s '39	109	103¾	107	+3
Richfield Oil 6s '41	131	130½	130½	—1½
Sun Oil 5½s '39	101¼	100½	101¼	+ ¼
Valvoline Oil 7s '37	107	106	107	+2
Warner Quinlan 6s '42	114	109	110⅝	—2⅜

New York Bonds

Week Ending Oct. 26

	High	Low	Last	Ch'ge
Assoc. Oil gold 6s	102¾	102⅝	102¾	0
Atlantic Refg. deb. 5s	101¾	101½	101¾	+ ⅜
Barnsdall Corp. 6s	136	127	130	—6
Barnsdall Corp. 8s ex-war.	95¾	94¾	94½	— ⅞
Cal. Pet. 5s	100⅝	100¼	100⅝	+ ⅜
Cal. Pet. 5½s	103¾	103½	103⅝	+ ⅛
General Asphalt 6s	109	107¾	109	+2
General Pet. 5s	101	100½	101	0
Humble Oil & Refg. 5s	100⅞	100	100¼	— ⅝
Mid. Cont. Pet. 6½s	105¼	105	105⅛	+ ⅛
Pan Amer. P & T 7s	104¾	104½	104½	— ⅛
Pan Amer. P & T 6s	104¾	104	104½	+ ¾
Pan Amer. P & T 6s	96	95½	95½	0
Prod. & Refg. 8s	110¾	110¾	110¾	0
Pure Oil 5½s	99¾	99¼	99¾	0
Shell Union Oil 5s	98½	97½	98	+ ½
Simms Pet. 6s	104½	100¾	102⅛	—2⅞
Sinclair Con. Oil 7s	103	101¾	102¾	0
Sinclair Con. Oil 6½s	102	99¾	102¾	+1¾
Sinclair Con. Oil 6s D	99⅜	99	99⅜	+ ⅜
Sinclair Crude Oil 5½s	99¾	97	97¾	+ ¼
Sinclair Pipeline	94⅞	93⅞	94½	+ ½
Skelly Oil 5½s	93¾	93½	93½	— ⅛
S. O. N. Y. 4½s	97	96½	96⅞	— ⅛
S. O. N. J. 5½s	105½	103	103	0
White Eagle Oil 5½s	101¾	100	101¼	+1⅛

Oil Dividends

	Amount	Payable	Stock of Record
Anglo-Persian	7½½	.....	.....
Cities Service m	10c	Dec. 1	Nov. 15
do stock m	½½	Dec. 1	Nov. 15
do pfd m	50c	Dec. 1	Nov. 15
do pfd. BB m	50c	Dec. 1	Nov. 15
do pref B m	5c	Dec. 1	Nov. 15
Gen. Asphalt pfd. q	$1.25	Dec. 1	Nov. 15
Simms Petroleum	40c	Dec. 15	Nov. 30
Skelly Oil q	50c	Dec. 15	Nov. 15
S. O. Ohio pfd. q	$1.75	Dec. 1	Nov. 9

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